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THE CRISIS OF EXOPHTHALMIC GOITER*

BY FRANK H. LAHEY, M.D., F.A.C.S.†

THE following remarks concerning thyroid crises and their management are prompted by the fact that so many patients are constantly being brought to the hospital in advanced stages of thyroid crisis and because so many of these inoperable patients die in spite of the employment of every measure with which we are acquainted. In a high percentage of these cases, the early employment of proper measures would have prevented their progress into a critical state and have saved many lives.

Numerous physicians, doubtless, go through their lives having seen but one or two cases of thyroid crisis. The number of cases of exophthalmic goiter or primary hyperthyroidism occurring in any one man's practice is necessarily comparatively small, due to the relatively limited incidence of the disease and the fact that out of all of the cases of primary hyperthyroidism, but a very small number progress into the state of acute crisis. That the condition is not a common one is evidenced by the fact that in a clinic such as ours, where 1118 operations for thyroid disorders were done last year, one-half of which were for exophthalmic goiter or primary hyperthyroidism, but 6 patients died of acute thyroid crisis. In none of these patients could the question of operation be considered, so serious was their condition. That the mortality is a real one is proven by the fact that this number coincides exactly with the total deaths (six) following all thyroid operations for the same period. In other words, the deaths from thyroid crises not only surpassed the operative mortality of exophthalmic goiter (primary hyperthyroidism) but equalled the entire mortality including that of primary hyperthyroidism, adenomata, intrathoracic goiter and malignancy. These deaths occurred in spite of the employment of most active measures against the condition, and it is evident, therefore, that while the incidence of thyroid crisis is comparatively low, nevertheless it is by no means rare, and its mortality—once the crisis has become established—is definite and real.

That there is a very great need for education of the physicians concerning this condition is shown by the fact that the seriousness of an impending crisis had been realized in but a few of the cases sent to the clinic, and that in but few, if any, had proper measures been employed to combat its onset. This statement is made with no purpose whatever of being critical, but with helpful intent, and for the sole purpose of demonstrating the need of education concerning the onset, management and avoidance of acute thyroid crisis.

The course of exophthalmic goiter is characterized by incomplete remissions and exacerbations. Remissions may occur spontaneously or may be hastened by rest, iodin, or a combination of both. In the well-established case of exophthalmic goiter, remissions are rarely permanent; even less often are they complete. They may last for a period of several weeks to a few months.

Exacerbations occur in the natural course of the disease. They may be hastened by fatigue, intense psychical stimulation, by an intercurrent acute infection, or any unusual strain, mental or physical. When they occur as the result of prolonged fatigue, psychical stimulation, intercurrent infection, etc., they manifest themselves by those symptoms of intense and overwhelming toxicity, known as the *crisis* of hyperthyroidism. Crises have been incited, in our experience, for example, by serious emotional stimulation. In one case, the sudden death of a parent precipitated an uncontrollable crisis; and in another case, the sight of a gruesome automobile accident brought about a similar condition. In both cases death resulted a few days later in acute crisis. Acute infections, such as severe tonsillitis, acute appendicitis and acute cholecystitis, have in some of our cases precipitated such acute thyroid crises as to result fatally in spite of all active measures. We have likewise seen acute and fatal thyroid crises immediately follow the performance of general surgical procedures, particularly with a general anesthetic, upon patients with an active thyroidism. Such stimulation as described above is not necessary, however, for the production of a crisis. The majority of the cases of crisis which we have seen have occurred in patients known to have hyperthyroidism and in whom the severe exacerbation developed without an apparent inciting cause.

We wish to emphasize that just as there is an emergency treatment for impending diabetic coma, there should be and is an emergency treatment for the impending thyroid crisis. It should

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†For record and address of author see "This Week's Issue," page 293.

be realized that if one wishes to prevent the forbidding mortality which ensues when patients are permitted to progress into crisis, helpful measures must be instituted early, when the first evidences of acute thyroidism present themselves and before the condition has progressed to a state of marked severity.

It must be said, and with no purpose of unjust criticism of non-operative methods, that in practically every death from thyroid crisis, the fatal outcome could have been avoided had the patients been submitted, or been willing to be submitted, to partial thyroidectomy, when the disease was frankly obvious but still mild. Practically no thyroid crises have occurred in our experience except in those cases in which the disease had been present, recognized, and treatment not sought or unsuccessfully managed in a conservative manner, for a considerable period of time. We believe, therefore, that the fundamental feature in the management of this condition is the early and satisfactory control of thyroidism by surgery. We believe that one should not undertake prolonged and non-operative treatment of hyper-thyroidism without frankly facing and stating to the patient the possibility of this serious complication.

We strongly urge, therefore, that all cases of thyroidism be operated upon before the thyroidism becomes severe and intense. All patients showing rapid increase of thyroid toxicity as evidenced by diarrhea, vomiting, marked increase in activation and definite changes in the mental state, or delirium should be submitted immediately to proper emergency measures directed toward the control of the thyroidism.

The earliest signs of the onset of the thyroid crisis are those of increasing toxicity,—a rising pulse rate, increased excitability, lessened emotional control and over-activation. The actual crisis usually is ushered in with an attack of diarrhea and vomiting. The pulse rate continues to rise and may reach a rate of 200 or over. There is extreme restlessness. The face is flushed. Sweating may be profuse. Respirations become increased in depth and of a sighing character. The temperature may be normal or elevated to 104 or 105°. When a high temperature is present from the onset, one should search carefully for evidence of coexistent acute infection. In our experience this has frequently been in the tonsils. Talkativeness merges into delirium which may become violent. The vomiting and diarrhea become less frequent and the delirium alternates with periods of apathy simulating coma but from which the patient may be aroused. Sweating is replaced by a dry skin as dehydration occurs, and if it has not done so before the temperature becomes increasingly elevated. The tachycardia persists; auricular fibrillation is frequently present with a marked pulse deficit. As may be deduced from the foregoing, the patient's condition is one of utmost gravity.

Patients are usually brought to the hospital in the wildly delirious state or in the semi-comatose condition. With a definite history of thyroid toxicity in the past, coupled with careful examination, the diagnosis usually presents little difficulty. When the patient is seen in the semi-comatose state for the first time, the diagnosis is not always so obvious. However, a history suggesting thyroid toxicity may usually be obtained from the family, which, together with the characteristic firm consistency of the thyroid on palpation, leads to the diagnosis. The urine must be examined carefully, and blood taken for estimation of the sugar, non-protein nitrogen content and carbon dioxide combining power in order to rule out diabetes or uremic coma, conditions which not infrequently coexist. A careful search should be made for evidences of acute infection. As has been stated, this may be found, frequently in the tonsils, but the chest, kidneys, abdomen and extremities should be examined carefully. This is of the utmost importance. Just as in impending diabetic coma, the crisis is often incited by the infection and if drainage of a focus of infection can be accomplished readily, without a general anesthetic, marked benefit may immediately result. Evidences of cardiac decompensation should be searched for, but it is uncommon in this type of case.

In the management of acute thyroidism (non-operative and non-operated,) the principal measures which one may employ are iodin, fluids, glucose and morphia. These are about all the aids upon which one may count, but if applied early and in sufficient amount before the crisis has reached full development, they will, in a majority of instances, prevent an unfortunate outcome.

When iodin was first suggested by Plummer as a method of controlling thyroid over-activity, we were optimistic in believing that it would prove of great assistance in controlling those thyroid patients brought to us in delirium and in severe thyroid crises. We were so hopeful concerning it that we felt it would prevent the high mortality in this group of cases with severe non-operable thyroidism.

There can be no question of the value and efficiency of iodin in its ability to convert the morphological picture of active thyroidism (hyperplasia) to that of diminished thyroidism (involution). There can be no question as to the ability of iodin to convert patients with marked thyroidism to patients with less severe thyroidism preoperatively, and there is no doubt that iodin plays a very important part in association with the other measures,—fluids, glucose, and morphia—in preventing progress from a mild to a severe thyroid crisis. Unfortunately, its employment together with the above mentioned aids in the acute and severe thyroid crisis has not been as gratifying and helpful as we had hoped. Once patients have progressed into the advanced stages of severe crisis, the effect of

iodin has been less striking and far less satisfactory than as a preoperative method of reducing thyroid toxicity. This is due principally to the fact that the state has progressed to such a serious one and, as the result of the effects of dehydration, fuel deficiency, and over-driven metabolism, is no longer solely a thyroid problem, but one involving all bodily functions. Under such circumstances, the mere slowing of the thyroid activity is now but one part in the complicated problem which has arisen.

The efficacy of iodin in the treatment of the crisis will depend upon whether or not the patient has had iodin previously. If so, as good results cannot be expected as if iodin were being given for the first time. The effects of iodin therapy, once achieved, are seldom repeated with the same efficiency. The mode of administration of iodin varies with the condition of the patient. If able to take fluids by mouth, Lugol's solution in 20-minim doses is given for five doses.

If the patient is vomiting and has diarrhea, the oral or rectal route cannot be used. Here it may be given with saline solution by hypodermoclysis or intravenously. By hypodermoclysis, 50 minims of Lugol's solution may be given in 1500 c.c. of saline solution. Intravenously, 0.5 gram (7½ grains) of sodium iodide may be given, together with saline or saline and glucose, as will be discussed later. In the semi-comatose patient, 30 minims may be given by stomach tube and repeated at hourly intervals until three or four doses have been given. The object is to administer an excess of iodin—literally to saturate the thyroid with iodin.

The next essential is to furnish fluid and fuel to meet the needs of the greatly increased metabolism. Fluids are urgently indicated. Surface evaporation has been high; intake has been curtailed; there has been a great loss of fluid by vomiting and diarrhea.

Likewise fuel is urgently needed. The glycogen reserve of the liver, always low in hyperthyroidism, has been called upon to meet the demands of a greatly increased metabolism. Food intake has been impossible. As a result, the individual burns up his own tissues at a rapid rate. In some cases the blood sugar is definitely low. Glucose furnishes a readily oxidizable food stuff to meet the pressing demand.

To satisfy these needs of fluid and fuel, an intravenous infusion of a liter of normal saline to which has been added 75 grams of glucose is given, and repeated every six hours. At least an hour must be taken for the administration of 1000 c.c. of the intravenous solution, since otherwise some of the glucose will be lost in the urine. Eight ounces of saline every four hours may be given by rectum if there is no diarrhea. Morphia, in quarter-grain doses, is continued regularly. The tolerance to morphia in all cases of severe thyroidism is decidedly increased. Comparatively large doses are necessary and should be given sufficiently often to allay the slightest restlessness. Scopolamine, gr. 1/200 may well be combined with the morphia if there is delirium. Frequent sponge baths are of value. Gastric dilatation is sometimes present, and in comatose patients especially, gastric lavage should be done.

In favorable cases there is improvement twelve to eighteen hours after these measures are instituted. The emergency measures should be persisted in, however, until all signs of the active crisis have disappeared. If vomiting has stopped, the patient is urged to eat, carbohydrates predominating in the diet. Ginger ale, orange juice to which has been added two or three teaspoonsful of lactose, cold solutions of 10 per cent. glucose,—all help to maintain fluid intake and high carbohydrate supply. The intravenous infusions are continued, but with diminished frequency if the symptoms are improving. Lugol's solution is continued, now given by mouth if possible, in 10-minim doses. Fifty drops should be given during the twenty-four hour period after the initial large dose. On the third day improvement is usually marked and the usual preoperative treatment may be instituted and maintained until the patient's condition is thought suitable for operation.

Contrary to the usual custom, we have prepared these patients for operation soon after they have recovered from their crisis (one to two weeks), and as a rule have performed a first stage hemithyroidectomy. We have not had unfavorable results with this plan, and have promptly checked the toxicity; so much so that the second stage hemithyroidectomy could be done six weeks later and the patient permanently removed from the danger of further crisis.

As important as any of the therapeutic measures mentioned is the strict individualization of each case. A thyroid crisis should be considered the most urgent problem of the moment, and individual, personal attention must be given to the patient's changing needs until the critical period is past.

CONCLUSIONS

Thyroid crises are by no means rare.

The mortality rate in patients permitted to advance into a state of crisis is extremely high.

Treatment in this condition is most effectual if vigorously applied when the first signs of the condition appear.

The possibility of the onset of a thyroid crisis during treatment must be considered when conservative treatment is adopted in a patient with thyroidism.

RADIUM AND ITS USE IN GYNECOLOGY*

BY JOE VINCENT MEIGS, M.D., F.A.C.S.†

INTRODUCTION

RADIUM has become one of the best known methods for combating cancer and it is therefore of interest to present the essential facts about it as briefly as possible. "According to our best statistics more than one in ten of all the deaths which occur among our men and women are due to cancer. Among men between 55 and 70, at least one in eight deaths is caused by cancer. Of all the women who die between 45 and 65 not less than one in four die of cancer." (Soper) Many patients hitherto considered hopeless and untreatable have been made more comfortable by radium treatment and some cases of the apparently hopeless variety have been among the brilliant radiological cures and are alive at least three years after their treatment. For these reasons this paper has been written, giving the history of radium, a small amount of the physics, a few theories of treatment and a survey of the uses of radium in gynecologic tumors and diseases.

HISTORICAL

The announcement in 1895 by Roentgen of the discovery of X-Rays led to speculation concerning other substances that cause fluorescence. In 1896 Henri Becquerel discovered that the salts of uranium could affect a photographic plate and thereby demonstrated the phenomenon of radio-activity in a metal. Shortly afterwards Mme. Curie discovered that thorium also was radio-active and subsequently she and her husband, observing that the waste product, after extracting uranium from pitchblende, was more radio-active, succeeded in isolating the elements, polonium and radium. This discovery was announced on Dec. 26, 1898. Since then radium has been extracted commercially from the Colorado carnotite, Austrian and later Congo pitchblende. The American source (carnotite) is not nearly as concentrated in radium content as the Belgian pitchblende, and so today the main supply of radium comes from the Belgian Congo. The expense of extraction is enormous for in the best quality of pitchblende there is less than a gram to the ton, or in the proportion of one to several million. The price per milligram of Belgian radium is at present about $70.00, or $70,000 per gram.

The first attempts to discover the biologic effects of radium were made in France and the results were so encouraging that a new form of treatment appeared, known as radium therapy or curietherapy. Oudin and Verchire were the first in Europe to use radium in the treatment of uterine hemorrhage, and Kelly of Baltimore was one of the pioneers in the treatment of uterine cancer, although its first use in this disease was in France.

PHYSICS

Radium is a white metal with an atomic weight of 226. It is a member of the uranium series, similar in some way to barium, and is of the family of alkaline earths. The breaking-up of atoms of radium and the formation of new elements is accompanied by radiations and this phenomenon has been given the name of radio-activity. Radium is constantly undergoing a spontaneous change or disintegration and is giving rise to the formation of new atoms of radio-active substances which are quite different from the parent element. The first disintegration product is radium emanation, a gas, now known as radon, and the break-up of the radon atom in turn gives rise to the formation of other elements of the radium series, among which are radium B and C, the most important elements in the series. The value of radium B and C is due to the fact that when their atoms explode to give rise to the next element in line beta "rays" and gamma "rays" are liberated. It is with these two rays that we are concerned and to them is chiefly due the action of radium on tissues. Radium B and C are very short-lived, but they are constantly being formed from the original radium. Radium, the metal, and radon, the gas, are used in the treatment of diseases. The life of radium is extremely long and for convenience it is customary to speak of the half life period of these radioactive substances. For example, in 1670 years one half of a given amount of radium will have changed to radon and in 1670 more years one half of the remaining half, etc., ad infinitum. The half life period of radon, the gas, is only 3.8 days and 99.9% of the total is used up in 30 days. The radon atom diminishes 19% per day.

The unit of treatment is the milligram or millicurie hour. The milligram hour is used to designate treatment with radium salt and the millicurie hour the treatment with radon. One milligram of radium salt in use for one hour is spoken of as one milligram hour and one millicurie of radon in use for one hour as one millicurie hour. A millicurie is the amount of radon in equilibrium with one milligram of radium.

Radium is used as a salt, the chloride or sulphate. It is put up in tubes of varying strengths and the tubes are used either alone or in applicators. The hydrated sodium bromide of radium is used in solution to give off the gas, radon, which is collected in glass and gold capillary tubes of varying lengths and thicknesses.

*From the Tumor Clinic and the West Surgical Service of the Massachusetts General Hospital.

†For record and address of author see "This Week's Issue," page 293.

The large tubes are used in the same way as the tubes of radium, and the small tubes, or seeds, are made up in 2-3 mm. lengths with a wall-thickness of 0.2-0.3 mm. and an over-all diameter of 0.6-0.8 mm. The seed usually contains 1-5 millicuries of radon and is buried permanently in the tissue when it is used. The one millicurie seed is the most frequently used and a seed of this strength gives off 132 millicurie hours of radiation before its death, a tube of 2 millicuries will give off 264 millicurie hours and so on.

Thus radon is more mobile than radium and its uses are more diversified. Large tubes cannot be left long in place as there is a limit to the amount of radiation that is safe to use. It is unusual to use a contact or interstitial screened or unscreened treatment of over 5000 millicurie or milligram hours. Thus a 500 milligram tube in 10 hours would give off 5000 milligram hours of radiation. There is great difference in the value of radium and radon and the loss of a tube of radium would be extremely serious. For these reasons radon is more useful than radium. The fullest use of radium cannot be obtained without the use of radium emanation.

In speaking of the rays used in the treatment it is customary to attribute to radium itself the power to emit them. Radium B and C are in great measure responsible for them but for convenience sake the effect is attributed to radium. Thus radium emits three so-called "rays," the alpha, beta and gamma rays. Gamma rays are one hundred times more penetrating than beta rays and beta rays are one hundred times more penetrating than alpha rays. The alpha ray is the nucleus of an atom of helium moving at a very rapid speed. It has practically no value in the treatment of disease because it cannot penetrate the wall of its container. Alone it cannot penetrate an ordinary piece of paper, and so the value in treating tumor tissue is nil. It can be left out of the discussion entirely. The beta ray is a negatively charged electron, while the gamma ray is a true electro-magnetic wave and is formed by the disturbance set up by the bursting of the beta particles, or electrons from the radium atom. Gamma rays are similar to the short wave lengths of the x-ray except that they are shorter and correspondingly more penetrating. The radioactivity of radium is made up of 92% alpha rays, 3% beta rays and 5% gamma rays. The largest amount of radiation is therefore of very little use for the alpha rays are excluded in the treatment of cancer.

The beta rays are the caustic, tissue-destroying rays and cause necrosis and sloughing of tissue. These electrons, or rays, have very little penetrating power because each electron going in a straight line into tissue strikes the atoms of the tissue and is held in check. The absorption therefore is great, whereas the penetration is very little. To be concrete seven-eighths of the rays are stopped by the first 3 mm. of tissue and 99% end in the first 13 mm. This great superficial absorption is one of the main factors in the use of beta radiation in the treatment of cancer where destruction or actual sloughing is desired.

The value of gamma rays, or electro-magnetic waves, is due to their great penetrating power. They have extremely short wave-lengths, and are more penetrating than the shortest waves of x-rays. However, because gamma rays are always accompanied by beta rays and because beta rays are caustic and injure the skin, some means had to be found to cut out the beta rays and thus permit the use of larger doses of gamma rays without injury to the skin. Two factors entered into this problem and have nearly solved it. One is the use of screening or filtration. Screening is the act of cutting out beta rays so as to permit the use of gamma radiation alone. Thus beta rays can be 99% cut out by 0.6 mm. of platinum, and slightly greater thicknesses of gold, lead, silver and brass in the order named. The greater the density of the metal, the greater the screening. Another factor is the removal of the source of radium some distance from the skin. This decreases the intensity greatly. The intensity at a given point in the tissue varies inversely as the square of the distance from the source of the radium. This is the universe square law. To have the dose the proper strength either the strength of the radium must be increased or the time element must be increased in inverse proportion. However, time and strength would add to the danger to the skin through which the gamma rays must pass, and to overcome this cross-firing came into use. Cross-firing is the use of different areas in the skin as portals to permit the passage of rays to definite areas in the depths of the body needing treatment. Thus using numerous portals with the rays directed at one area, the dosage can be greatly increased. The use of cross-firing or multiple point sources increases the intensity of the radiation at the desired point without causing great damage to the skin.

Besides the direct effect of radiation there are two other forms, namely secondary radiation and radiation due to scattering. Secondary radiation is due to the fact that some gamma rays striking an object, such as tissue, are changed to beta rays, and some beta rays are changed to gamma rays. Some think that the efficacy of gamma radiation is due to the secondary beta rays that act deep in the tumor tissue. Scattering is the phenomenon of rays or particles that are forced out of direct line of radiation and are absorbed by tissue distant from the area that it is desired to treat.

TREATMENT

Beta rays, which are caustic, are used in the treatment of superficial growths such as basal cell carcinoma and epidermoid carcinoma. The unit of dosage sufficient to cause an ulceration in the skin and the destruction of a superficial

cancer is about 15 millicurie hours of steel-screened radon. This dose causes an ulceration in the skin of an oval the length of the tube and about 1 cm. in width. For instance, a small epithelioma about 1 cm. square is treated by laying upon it a steel tube containing 100 millicuries of radon for 9 minutes. This would give a total dose of approximately 900 millicurie minutes or 15 millicurie hours. Because of the inverse square law, if the tube were removed 1 cm., the dose would have to be multiplied by four, and if 2 cm. by sixteen. Thus beta rays, or negatively charged electrons, are used in the treatment of superficial tumors, such as various skin cancers. Because these rays are caustic and destructive this type of treatment is valuable. Beta radiation may be used as a substitute for surgery in that a definite area of tissue may be destroyed by this type of radiation as surely as though it were excised by the knife. The lesion being completely destroyed disappears, to be replaced by an ulcer which gradually heals. This type of radiation also has great value in the treatment of cervical carcinoma because the tumor and the normal tissue adjacent to the tumor are completely destroyed by the severe reaction. Thus in cervix cases, when bare steel tubes (steel filters out only a very slight percentage of beta rays) and glass emanation seeds are used, it is frequently noticed that the entire cervix has been destroyed and that there is marked fore-shortening of the vagina due to loss of tissue. The results in cases treated in this way are very good and are especially so when the disease is confined to the cervix and a small portion of the surrounding vaginal tissue. The objections raised to this form of treatment are the greater danger of causing fistulae, the great amount of sloughing and necrosis present, with its disagreeable discharge, and the greater fore-shortening of the vagina. No consideration is given here to the question of specificity of rays for cancer tissue as this type of radiation attacks healthy as well as diseased tissue with about equal results, that is, necrosis and destruction.

Beta radiation is at best a superficial therapeutic agent, for 99.9% of the rays are absorbed by the first 13 mm. of tissue. This is shown well in the use of buried glass emanation tubes. It has been proved by animal experimentation that the area of actual necrosis formed by a seed 1-5 mc. in strength is 6-12 mm. The area is increased somewhat but in no great amount by increasing the strength. The gold seed, however, 1-5 mc. in strength, causes actual necrosis in only a very small area, just next to the tube, whereas it causes partial necrosis and cessation of growth in the same sized area as the glass seed. The gold seed has the advantage in that total necrosis is nearly absent. Glass seeds cause death by actual necrosis whereas the gold seeds cause it by a totally different type of reaction, which must mean that the beta and gamma radiations are definitely different in action on cancer cells. It is also evident that to treat cases with seeds it is necessary to space the seeds at not too great distances to cause the death of the entire tumor.

Gamma radiation, on the other hand, is at present in great vogue, and is probably a much more gentle way to accomplish the same result. The beta rays are screened off with the proper amount of brass, platinum, gold or lead. The action is slightly different, for apparently the gamma ray has a greater affinity for cancer tissue and less for normal tissue. The tumor is made to disappear by preventing the growth of new tumor cell, thereby causing its death. Sloughing and necrosis occur close to the tube but not in such great measure as in beta radiation because the so-called cauterizing rays are nearly all filtered out and about the only effective beta rays are those due to secondary radiation. Hence the attempt is made to prevent further development and growth of the tumor, whereas in beta radiation absolute destruction is aimed at. It is true that in gamma ray treatment there is much more often left a piece of normal appearing cervix than in the beta type of treatment. If there were any part of the cervix not involved by disease, it would probably not be destroyed by the gamma type of radiation. Apparently the action is more selective and the tumor cell is checked in growth, whereas the slow-growing tissue is not harmed.

The intensity of radiation by gamma rays falls off very rapidly from the source. For instance, tissue two inches away from a gamma-screened needle ½ inch long receives but one-thousandth of the dose received by the tissue contiguous with the needle. This is a practical example of the inverse square law. The radiation close to the tube is great but at a distance it is small in amount. The intensity varies inversely as the square of the density of the metals used as filters and the distance. Therefore, it is evident that the center of a tumor treated with a heavily screened interstitial radium implantation will receive a great deal of radiation but the area at the periphery will receive very little. It is also probably true that if gamma radiation is placed in the center of a tumor that the rays may never reach the periphery of the tumor mass in lethal amount, no matter how long it is left in place. To overcome this the Radiologists at St. Bartholomews Hospital in London have divided their radium into numerous containers and distribute them as evenly as possible throughout the field of disease.

Considerable work has been done to point out the effect of gamma radiation in France, England and Sweden. In France they believe that the gamma ray destroys the dividing cell, whereas in England the belief is that it prevents the cell from going into mitosis just as it is about to do so. In England they believe that there is a minimum amount of radium that prevents cells from beginning mitosis and that large amounts of radium do not prevent the phenomenon any

better. Donaldson and Canti have proved to their own satisfaction in treated cases of cancer of the cervix, that at the end of 24 hours mitosis ceases, only to recur, but in abnormal states, at about the end of four days. Using this knowledge of the effect of a minimum amount of radium with the knowledge of the recurrence of mitosis at the end of four days, they feel that the method of gamma treatment should be to treat as large a field as uniformly as possible with a minimum amount of radium for a maximum amount of time. Thus Donaldson treats cases with gamma radiation quite differently than we do, and perhaps with more reason. He uses 50 milligrams in tubes the size and length of small wire nails (4 cm. long) each tube made of 0.5 mm. of platinum and containing 2-3 milligrams of radium. In the treatment of cervical cancer these are placed in the periphery of the diseased area and into the broad ligaments and left in place for six days or 144 hours. The rational of the treatment is excellent, but whether the results will be as good as other methods is not as yet determined. Suffice it to say that by this same method Keynes at St. Bartholomews Hospital in London has had such good results with inoperable breast carcinoma that the Staff of the hospital has turned over to him all the cases on his service for treatment with radium.

The above effect of radium in cancer tissue has been checked experimentally by using the growing chick embryo in vitro. These results in vitro show the same phenomenon as Donaldson's work showed in daily specimens removed from cancer of the cervix. This is not a true comparison as growing chick embryo, though containing mitotic figures, may not react as cancer does to radium.

This raises the question as to whether the present system of treatment in use at the Massachusetts General Hospital, a large dose of gamma radiation for a short time (silver screened for the central applicator and gold seeds) will be as effective as the method of bare steel tubes and glass seeds or destructive beta radiation.

It is interesting to note that Burnham has recently remarked in discussing a paper by Quick of New York that he has seen a case in which the result obtained suggested that a small amount of radium over a long period of time may do even better work than the single massive dose. Bowing of Rochester, in discussing the same paper, remarked that he had been impressed by the time factor and is almost of the opinion that the duration of treatment is as important as the quantity of radium employed.

Treatment of deep-seated tumors, where implantation of emanation is not possible, is done almost entirely with the deep x-ray therapy machine, as this has proved as efficacious as radon, or radium packs such as were formerly used. Some clinics are using mobile packs of 5 grams of radium as a substitute for deep therapy, with considerable success.

The reaction of tissues to radium is shown microscopically as an early swelling of cells and hyperchromatism of the cell nuclei. There is an initial hyperemia, exudation of serum, leukocytes and occasionally rupture of capillaries. Later a reparative process is commenced which helps to remove destroyed tumor tissue. The arteries and arterioles are thickened and eventually are obliterated causing a definite decrease in the blood supply to the tumor. Lymphocytes and plasma cells become frequent and finally a great increase of connective tissue occurs which has an anemic blood supply. By this final type of reaction the cancer cells that are left behind cease to be supplied with blood and are incarcerated in a mass of firm, connective tissue and so may remain harmless for a considerable period of years. The morphological picture fails to explain the fundamental changes due to the rays.

It has been found that rapidly growing tumors, tumors of very little differentiation, those resembling embryonic tissue and those containing many mitotic figures, are much more susceptible to radiation than are those tumors with considerable differentiation and few dividing cells. This is a loose interpretation of the law of Bergonie and Tribondeau which states that immature cells and cells in an active state of division are more sensitive to the x-rays than are cells which have already acquired their fixed adult morphological and physiological characteristics. Thus it can be seen that it is perhaps not correct to treat all cancer with approximately the same dosage or the same type of radium or x-ray treatment. Would it not be safer to treat cases of low malignancy with perhaps twice as much radiation as tumors of high malignancy, to use destructive beta radiation, or to operate upon them? Here biopsy ought to be of use in determining the cases of low malignancy and allowing the proper application of treatment. Perhaps surgery of operable tumors of low malignancy is the proper treatment.

Many clinics regard infection, especially with a hemolytic streptococcus, as very harmful in that it prevents the proper results from a well applied treatment. Apparently infection of this nature stimulates the activity of tumor cells but does not make the tumor more susceptible to the rays, and even if the mitotic figures are susceptible to rays, the infection interferes with the connective tissue formation, which is very important in keeping the tumor under control.

Radium treatment, like the surgical treatment of cancer, does not lend itself to the cure of recurrent cases. The removal of metastases or recurrences in the site of operation results in a surgical cure very seldom and this is also true of radium treatment. The entire result hinges upon the efficacy of the first treatment. Re-

peated doses are not effective and are in some regions, where the fibrosis is great, very painful because of the swelling of the scar tissue. Scar tissue, being comparatively inelastic, sets up a firm, hard edema when radiated that causes great pain by its pressure. Therefore, insufficient and poorly judged treatment makes an otherwise perhaps treatable case absolutely hopeless from a radiological point of view, and if treated, causes unnecessary agony.

CLINICAL USE

In tumors of the vulva, complete vulvectomy is the method of choice. The glands of the groin may be dissected completely or they may be treated by x-ray therapy. Complete vulvectomy and dissection of the groin, even though done in an early stage of the disease, may not cure the patient as the iliac and perirectal glands may be involved. For this reason the deep x-rays should be directed against the region of the iliac glands and the perirectal glands before the patient is discharged. If the tumor has metastasized to the groin, the chances of metastasis to one or other of the other two likely areas of involvement is great. Radium is not advocated because of the excellent results with surgery and the indefinite results with radium in this type of carcinoma. However, it can be used in the form of seed implants or local application when surgery is contra-indicated.

Tumors of the clitoris are best treated by surgical removal. When removal is not possible, because of the extent of the disease, radium in the form of seeds or local application may be tried. The results are not good with radium. Tumors of the clitoris are treated in the same manner as tumors of the vulva.

In carcinoma of the cervix radium is the method of choice. Surgery is dangerous, the mortality great, and radium treatment in the operable cases is as satisfactory as surgery with much less danger. In the inoperable cases some of the results with radium are marvelous and surgery cannot compare. Cases are divided into groups as follows: in the first, belong the tumors confined to the cervix, in the second, the tumors involving the cervix and the vagina, in the third, the involvement of the cervix and broad ligaments, and in the fourth, wide pelvic fixation or distant metastases. In the early favorable cases the present method of treatment is destructive beta radiation using the radon in a thin steel container placed in the cervical canal and glass seeds in the periphery of the growth at the margin of diseased and healthy tissue. In the group C and D cases, or when it is felt that a cure with destructive radiation cannot be obtained, or the danger of fistula formation with that type of treatment is too great, a silver or brass screened treatment with gold seeds is given, and in the even more extensive cases a heavy lead screened treatment, with or without gold seeds. The results are quite good. The patient experiences pain and discomfort for about six weeks and at the end of three months is usually improved even though the growth is extensive. Deep x-ray over the diseased part is of occasional help in eradicating the pain due to widely fixed disease.

In cancer of the fundus of the uterus hysterectomy is the method of choice, and a good result may be expected in nearly every early case. However, it must not be forgotten that many cases are not diagnosed until late in the disease and metastases in the ovaries, tubes, etc., are quite common. Also metastases are often seen in the vagina and in the lumbar glands. The average expectancy of cure in this disease is about 40%. If the patient is a poor operative risk because of some intercurrent disease, a high blood pressure, obesity, etc., it is occasionally fair to use radium. The results are not very good, but it is far better to give the patient two to three years of comfortable life, using radium, than to cause the death of the patient at once by the use of a poorly planned operation. Many clinics report cases free from disease up to six years. The reports of cases of perforation into the abdomen because of destruction by radium of disease in the uterus and subsequent peritonitis are so infrequent that it is no longer held as a contra-indication to this type of radiation. Operation is the method of choice, but in certain poor risks radium is effective and often of much greater value than surgery. The treatment with radium is blind, for the application cannot be perfectly made in as much as the absolute location of the tumor cannot always be determined. A large screened dose of radon is given with the applicator in the uterine cavity.

Cancer of the vagina is usually fatal and except in the very earliest cases surgery is out of the question. The metastases occur early in the iliac glands and in the perirectal glands. Radium is best employed in the form of gold seeds and gamma radiation. The danger of fistulae is of course great and care must be exercised in treatment not to make the patient worse. The results with surgery and radium are poor and early death is usually looked for in this type of case. Sarcoma of the vagina is rare, extremely malignant and early fatal. It occurs more often in young children, where it is particularly hopeless. Radium in the form of seeds or surface applications may be tried but usually it is without effect. Surgical excision is nearly always impossible.

In ovarian carcinoma the deep x-ray or large radium packs are the only weapons available after surgery has been employed or discarded. For abdominal metastases and carcinomatosis deep x-ray is occasionally efficacious. There have been cases at the Massachusetts General Hospital treated with very great success; one case is now a complete cure that had had one carcinomatous ovary incompletely removed and the other removed at a later operation, and one case was made operable after an exploration had

shown the tumor to be inoperable. The latter case is still living and well two years after the second operation. In cases with ascites and in cases where it has been impossible to remove the ovaries, the results are not good. The one case in this group made operable, and living and well two years later, makes all cases worth treating with deep x-ray therapy.

In benign uterine bleeding, that is, bleeding due to some change in the endometrium, uterus, or ovaries, for which a definite lesion cannot be located and corrected, radium is at its best. It is here that its uses are greatest and a cure can be expected in nearly every case. Most clinics report about 90% of cures. Bleeding due to malignant disease, polyps, fibroids, inflammations and blood conditions, such as purpura, are excluded from this group. Bleeding of this type in young women must be treated differently from that occurring at and about the menopause. In young women the dose should not exceed 300 millicurie hours because of the possibility of causing a permanent amenorrhea and bringing about an artificial menopause. The small dose may be repeated if necessary. There may be a temporary amenorrhea for three to six months with the gradual recurrence of periods and a re-establishment of normal menstruation. In women of forty, or over, it is customary to give doses up to 1500 millicurie hours in a silver or brass applicator placed in the uterine canal, and in nearly every case a cure may be expected. In these women an artificial menopause is induced which is permanent. The action is probably due to an interference with the primary follicles of the ovary in the small doses, most of which are destroyed in the large doses. The endometrium is thinned out, it may be only one cell in thickness, and the endometrial glands disappear.

In the treatment of fibroids causing bleeding, the use of radium is of great value. There are, however, certain limitations and certain cases where this form of treatment is contra-indicated. Some of the main contra-indications are as follows: in women under forty because of the non-desirability of an artificial menopause; pedunculated tumors because of the danger of interfering with the blood supply to the tumor and the causing of a sloughing fibroid; in rapidly growing tumors because of the possibility of overlooking a leiomyosarcoma; in very large tumors because of the possibility of interference with the blood supply and of causing rapid degeneration of the tumor mass. In most cases within six months to a year a considerable reduction in the size of the tumor mass will be noted. In patients of forty with fibroids that are symmetrical and not larger than a three months pregnancy, the results are extraordinary, and in these cases radium should always be used to the exclusion of surgery. Also in cases where the blood pressure is so high that the desirability of operation is questionable, radium often can be used with success. In patients with gross anemia, a severe intercurrent disease where surgery is contra-indicated, radium may be tried, but realization of its limitations must be thought of before the operation. It is fair under certain conditions to attempt radiation where it would not otherwise be definitely indicated. The treatment for benign bleeding and fibroids is given in the form of radium or radon needles in a silver or brass applicator and placed well up in the uterine canal. This is practically gamma radiation. The dosage usually advised is from 1500 to 2500 millicurie hours. In benign uterine bleeding and in fibroids a diagnostic curettage with immediate or subsequent examination of the material by a pathologist is the first essential. This must be done to rule out the possibility of a malignant tumor, for which the treatment would be different, depending upon the type of lesion.

Radium can also be used in the treatment of cases where a cervical polyp or endometrial polyp has been removed. The radium in a tube is placed in the region of the base of the polyp either for a small or large number of hours, depending upon whether it is necessary to preserve the menstrual function or not.

Its use in cases of endocervicitis is recommended by Curtis of Chicago. A small amount, heavily screened, is placed in the cervical canal for a total up to about 300 hours. It is very noticeable that cases treated for bleeding or fibroids that have leukorrhea from an infected cervix often are cured of the discharge by the radium treatment.

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THE SPINAL FLUID IN MENINGITIS

BY FRANK FREMONT-SMITH, M.D.*

THERE are a number of clinical conditions in which the spinal fluid as examined by the ordinary clinical tests, may be essentially the same—such affections are: acute anterior poliomyelitis, epidemic meningitis, tuberculous meningitis, brain abscess, and encephalitis lethargica. At the onset, clinical differentiation may not be possible. Even with lumbar puncture, the wrong diagnosis is more often made than not, because of a superficial similarity in the fluids, and the long delay necessary for either positive or negative bacteriological reports. Therefore, I want to emphasize the important aid to be obtained from a study of the pressure, and the quantitative protein, sugar and chloride determinations, all of which can be completed within an hour after withdrawal of fluid. As the treatment of the patient depends very much on the correct diagnosis, particularly in cases of epidemic meningitis, or in acute anterior poliomyelitis, where we wish to give serum, the time element becomes of great importance.

Poliomyelitis is of interest to us at this time because we have been through an epidemic, and there is a possibility of another epidemic coming next year. The pressure in acute poliomyelitis is usually elevated at the beginning, though it may be normal. The protein is moderately increased at the onset and becomes progressively higher, so that two weeks after the paralysis has set in and the cells have come back to normal, the protein may be still increasing to reach a limit of 200-300 milligrams per 100 cc. The sugar in acute poliomyelitis is never decreased. It may be somewhat increased. The chlorides are slightly decreased in most cases. This decrease in the chlorides (670 mgm. per 100 cc. is the lowest figure I have seen) and the normal or high sugar sharply distinguishes the fluid from that of tuberculous meningitis, where the chlorides are practically always below 640 mgm. and the sugar, occasionally normal at the beginning, falls rapidly to 25 mgm., or even lower.

The diagnosis of brain abscess is rarely confused with poliomyelitis. Brain abscess always has a high pressure—I think one can state that to be the case, almost without exception. The estimation of the pressure by the rate the fluid drops from the needle is open to such gross error as to render it valueless. In the first place, a very high pressure may appear to be normal, because one of the nerve roots may float against the end of the needle, partially occluding the lumen and causing the fluid to flow slowly, drop by drop, in spite of the high pressure. If, in such a case, you can attach a manometer, the fluid will rise slowly in the tube and finally record the true pressure. The normal pulse and respiratory oscillations, however, will be diminished or absent, and partial occlusion of the needle will be suspected. Secondly, the fluid may spurt from the needle, even if the pressure is normal, provided the patient should hold his breath, cough or strain at the moment the stylet is withdrawn; whereas, if the manometer is attached, such a spurt of fluid will be represented by a momentary rise of the fluid level in the manometer, which will settle down to the true pressure level as soon as the patient relaxes. These points have been emphasized by Dr. Ayer for many years, but it is surprising how slowly the value of accurate pressure readings is realized, even in the most up-to-date hospitals.

We should contrast brain abscess with tuberculous meningitis, because that differential diagnosis is often missed. The pressure is high in tuberculous meningitis. The cells may be the same as in brain abscess. The protein is very high in tuberculous meningitis and becomes increasingly higher as the case progresses. We may, however, have an increase in protein in brain abscess. The differential diagnosis lies almost entirely in the sugar and chloride values, both of which are normal, or high, in uncomplicated brain abscess, while in tuberculous meningitis the sugar and chlorides are markedly decreased.

This chemical picture of the cerebro-spinal fluid in tuberculous meningitis is as pathognomonic as any laboratory test can be, and I feel that when we have that picture, together with a moderate increase in cells, we can make the diagnosis with assurance, even when tubercle bacilli have not been found in the clot. The search for the bacilli may last for hours, and be unsuccessful. The chemical tests can be made in any laboratory, which is prepared to do blood sugar and blood chlorides, in less than one hour.

Epidemic meningococcus meningitis and septic meningitis from any of the pus-forming organisms give similar fluids, which are readily distinguished from tuberculous meningitis by the greater number of cells, the excess of polymorphonuclear leucocytes and the coarse clot. The sugar in these cases is low, as in tuberculous meningitis, and the chlorides are also low, rarely as low (usually above 600 mgm.) as in tuberculous meningitis.

*For record and address of author see "This Week's Issue," page 293.

Much more difficult is the differential diagnosis between a true septic meningitis and the aseptic meningeal reaction associated with mastoiditis and extradural abscess or sinus thrombosis, or with other infectious processes in the immediate neighborhood of the meninges. In such cases, the cells may vary from a slight increase to a frankly purulent fluid. To prove the presence or absence of a true bacterial meningitis is extremely difficult in these latter cases. A high, or normal, sugar usually excludes bacterial invasion of the spinal fluid, and a very low sugar (under 30 mgm.) nearly always means that such invasion has taken place. A slight decrease in sugar (down to 40 mgm.) may be due to a large number of cells in the spinal fluid without the presence of bacteria. The chlorides are less helpful here, because, if high fever or septicemia exists, they will be low in the absence of meningitis. Normal chlorides, however, would practically exclude bacterial invasion.

Epidemic lethargic encephalitis is frequently difficult to distinguish clinically from tuberculous meningitis, brain abscess and brain tumor. In encephalitis lethargica the pressure is normal, while it is always high in the other conditions. This point deserves emphasis because I have seen several cases where the diagnosis of encephalitis lethargica was incorrectly made, in spite of a high intracranial pressure. The chief characteristic of the fluid in encephalitis lethargica is that the deviations from normal are very slight. The pressure, as I have said, is normal. The cells are absent in more than half the cases, and when increased, are rarely above 200, and almost never over 300. The protein is normal, or very slightly increased. There is no clot. The sugar is normal, or high when the blood sugar is high, and the chlorides are normal. Contrast this with tuberculous meningitis where the deviations from normal are striking at every test. We ought to be able to establish the diagnosis of tuberculous meningitis on the first puncture. The sugar in encaphalitis lethargica is only high when the blood sugar is high. The fasting blood sugar is somewhat increased in a moderate number of cases of this disease, and, in another group, the blood sugar rises high after a meal, like the blood sugar curve in diabetes. This transient rise in blood sugar is reflected in the spinal fluid, if the fluid is obtained three to four hours after a meal, which is usually the case. A normal blood and spinal fluid sugar is obtained, however, in the majority of cases, if taken after fasting over night. I want to emphasize that a similar high spinal fluid sugar is often found in brain abscess, brain tumor, uremia, carbon monoxide poisoning, meningismus, following convulsions, following ether anasthesia, etc., always resulting from a high blood sugar. It has, therefore, no greater differential diagnostic value than a normal spinal fluid sugar, i. e., it only assures us that the spinal fluid sugar is not low.

	Pressure	Protein	Sugar	Chlorides
Normal	60-200	15-45	50-75	720-750
Poliomyelitis	Normal or slightly increased	Increased	Normal or increased	670-750
Brain Abscess	High	Slightly increased	Normal or increased	Normal
Tuberculous Meningitis	High	100-500	Low, 40-0.	Under 640
Acute Meningitis	High	Increased	Low, 40-0.	640-680
Encephalitis Lethargica	Normal	Normal or slightly increased	Normal or increased	Normal

FIG. I.

The accompanying chart will bring out the points I wish to emphasize. The findings are well established in the literature. The first puncture performed on a patient is the most important. From this fluid all possible information should be obtained.

A single tiny crystal of thymol will preserve the fluid for sugar determination for 24 hours or longer, and will not interfere with the other chemical tests. Thymol should not be added to the fluid to be used for culture, serological tests or gold sol.

REPORT OF A CASE OF DERMATITIS CONGELATION WITH COMPLETE DESTRUCTION OF TISSUES

BY TOWNSEND W. THORNDIKE, M.D.*

I REPORT this case of congelation dermatitis due to the ice bag because of its rarity and practical interest. In fact it may be a medical curiosity, as I have not been able to discover another one in the literature, although I must add that my search has not been an exhaustive one.

We know that ice applications can be used for long continuous periods varying from hours to several days. Usually the reaction does not go beyond an erythema. Rarely does it go to a stage of vesiculation or bullous formation. This

*For record and address of author see "This Week's Issue," page 293.

second degree reaction is to be expected, if the ice bag is applied directly to the skin without the intervention of some covering. In this case there was complete destruction of all the integumentary structures with resulting cicatrization.

The patient is a Jewish woman of some forty-six years of age, sluggish in type and obese, a multiparae, but all her confinements uneventful. The only important point in her past history is that she has had oedema of the legs frequently and her urinary examination shows findings consistent with a chronic interstitial nephritis. Aside from a slight systolic murmur at the apex, the heart is negative. Following her last delivery, the woman was threatened, on both extremities, with a phlegmasia alba dolens. In order to relieve the pain, ice bags were applied to the most tender areas. These areas were on the posterior aspect of the thighs, just above the popliteal space. Previous to admission, ice bags had been in use constantly for a period of three weeks. I should mention that the ice bags were covered with a flannel and no salt was used with the ice. When I first examined the patient there was no sign of oedema or local infection. On either thigh over the area where the ice bags had been applied, there was a lesion in the form of a large, sharply circumscribed, solitary bulla, arising abruptly from the normal skin and about the size of a large grapefruit. Each lesion covered a surface about the area of the palm of a hand. The blisters were filled with a serous exudate, which had not changed its character up to the time of rupture. There was no sign of an areola about the bullae, but instead there was a well defined line, about a quarter of an inch wide, of alabaster whiteness. When I ruptured the lesions, the surface beneath was found to be necrotic. The ulceration from this time rapidly increased until finally all the dermal tissues sloughed away to the depth of the subcutaneous structures, leaving ulcers with indurated, sharply cut and not undermined edges, separated from the healthy integument by the white line which I have already mentioned. This girdle was the line of demarcation between the frozen and the healthy skin. These two lesions were so peculiar in their appearance that they did not conform to any known type of skin lesion, and, in the absence of a creditable history, I should have suspected the case as being one of malingering. The ulcers looked just as if they might have been produced by some escharotic.

As the process of repair was so slow, a Thiersch skin graft was resorted to, and an uneventful recovery followed.

The reason for such profound destruction, as seen in this case, was due to a stasis of the peripheral circulation in tissues already impaired by kidney disease. The stagnation of the blood supply was greatly increased by the cold and by the pressure of the weight of the thighs against the ice bags. The practical conclusion to be drawn from this accident is that, in the presence of tissues debilitated by chronic disease, or when there is any degree of venous congestion, care should be used when using ice therapy.

Total Subperiostial Resection of the Tibia With Complete Regeneration Within Six Months. Case presented and discussed by Dr. George W. Papen.

Case of Disease of the Knee Joint. Case presented and discussed by Dr. Thomas K. Richards.

Gummatous Infiltration of Both Testicles. Case presented and discussed by Dr. Townsend W. Thorndike.

Pyelographic Studies as an Essential Aid in Diagnosis in the Out-Patient Department. Discussed by Dr. Augustus Riley.

Series of Perforated Ulcers of the Stomach and Duodenum Operated on Under Novocain Local Anaesthesia With Posterior Gastroenterosotomy and Closure of the Abdomen Without Drainage. Discussed by Dr. William R. Morrison.

Basal Metabolism in Ichthyosis. A Severe Diabetic With Abscesses at Site of Insulin Injection. Cases presented and discussed by Dr. Louis J. Ullian.

Effect of Swift-Ellis Treatment upon the Spinal Fluid in Neuro-syphilis. Discussed by Dr. George P. Sanborn.

NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION

DEATHS FROM ALYPIN POISONING*

BY AUGUSTUS RILEY, M.D.†

SOME time ago I reported to this association a case of alypin poisoning. Since the reporting of this case I have had two other cases. You, no doubt, will remember, that the first case reported had his urethra traumatized by instrumentation before using the alypin, 4% solution. The same is true of the other cases. In other words all three cases had sounds passed, before the alypin solution was injected into urethra. In each case about one dram of the solution was used. The symptoms, convulsions, came on shortly after the urethral injection was made. The first case very soon after the convulsion began, the patient a young man about sixteen years old, was etherized, which controlled the convulsions. The second case was not so bad as the first one, but the convulsions were of a similar type.

The third case happened only a few days ago.

A man thirty-five years old, had urinary symptoms, warranting cystoscopic and pyelographic studies. He had a sound passed the morning before he came to the cystoscopic table. The routine alypin, 4% solution, one dram, was injected into the urethra. The urethra was massaged a few strokes along its course and the excess of the alypin solution was allowed to run out. A short time after the injection, before any attempt to pass the cystoscope, the patient began to convulse. The convulsion was practically continuous for several minutes. There was no time to administer ether in an attempt to control the convulsion before respiration ceased. The pulse at first was soft and weak and finally ceased, no heart sounds could be heard. Adrenalin solution was given intravenously and artificial respiration was given. By holding the arm up and rubbing it towards the heart apparently some of the adrenalin solution reached the heart. The heart began to beat after five minutes or longer the beats at first being very weak and irregular, but finally became regular, and of good quality. Artificial respiration and administration of a mixture of carbon dioxide and oxygen, were kept up for one hour before the patient began to breathe. Patient did not regain consciousness.

The patient was finally sent to the ward and put to bed. He never regained consciousness. He died about forty-eight hours later.

I have used alypin solution as a routine in cystoscopic work for the past six years and never had any ill effects, except in these three cases here reported. All three of these cases had their urethra traumatized before the injection. The use of alypin in a normal or non-traumatized urethra is apparently harmless, but in a traumatized urethra, I feel it is a very dangerous drug.

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†For record and address of author see "This Week's Issue," page 293.

TIP OF CATHETER BROKEN OFF IN URETER

I have here a piece of an X-ray ureteral catheter, about one inch long. It is the tip of a spiral filiform tipped catheter, used at the time to get by a strictured part of the lower end of the right ureter. The catheter doubled on itself and was broken off leaving the piece you see here in the lower end of the ureter. It was about eight weeks before we were able to remove this encrusted piece, which is covered with an encrusted soft stone about three quarters of an inch long, and one quarter of an inch in diameter.

DISCUSSION

JOHN W. KEEFE, M.D., F.A.C.S., Providence: I recall that some years ago Dr. Terry, who was a member of this Society, used alypin in urethral injections, and his patient had convulsions. A few weeks afterwards he used it on a second patient, and that patient died, so that it has always seemed to me, from his experience, that it is an extremely dangerous drug to use.

REPORT OF A CASE OF SPINAL CORD BLADDER*

BY O. D. PHELPS, M.D., F.A.C.S.†

I WISH to report a case of spinal cord bladder in a young girl of twenty-five, a stenographer, and show an exceptionally clear plate.

The girl presented herself with the complaint of frequency, incontinence and foul urine. She dates her trouble from an attack of whooping cough at age six and the condition was aggravated by a fall on her spine that she sustained about five years ago while swimming in an inside pool.

The girl was not emptying her bladder and the incontinence was due to overflow. Cystoscopy revealed a trabeculated bladder covered with incrustations and flakes of pus were floating about in the media. Kidney function was within normal limits and pyelograms were not remarkable. The diagnosis of Spina Bifida Occulta was made by the plates.

She was taught to catheterize herself and to wash her bladder and is getting along fairly well.

Rectal Sphincter gives some bother.

She empties her bladder within three or four ounces.

Operative procedures have been considered, but

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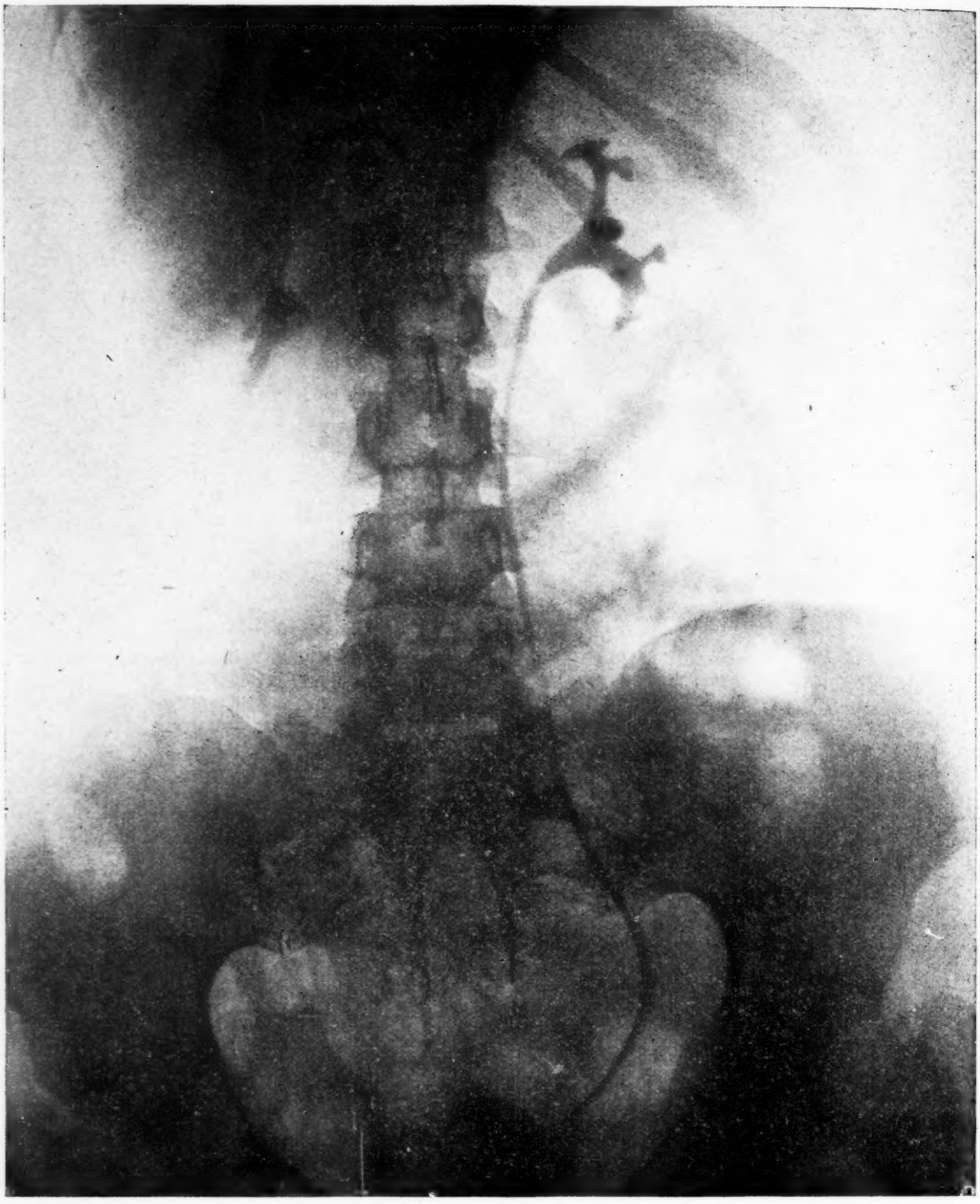

Pyelogram in case showing spina bifida occulta.

the condition has been relieved to such an extent that she is able to do her work and lead a fairly normal life at present.

Discussion

Dr. Fletcher H. Colby: I don't know whether Dr. Phelps remembers two cases of spina bifida occulta which Dr. Jason Mixter operated upon. They were patients with much the same sort of story; young adults who had had bladder symptoms for varying intervals. One of them was a man of thirty who dated his bladder symptoms from a hernia operation following which he had acute retention and had to be catheterized. Ever since that time he had had bladder irritability. This man had spina bifida occulta with interference with the sacral nerves. He was operated upon by Dr. W. J. Mixter, and a fibrous, fatty tumor was removed from the bony defect of the sacrum. That was two years ago, and he has been entirely well ever since. The last I knew of him was six months ago when he was emptying his bladder completely. The case was reported to show that occasionally something can be done for those individuals who have bladder symptoms associated with spina bifida.

PRIMARY EPIDERMOID CARCINOMA OF THE MALE URETHRA*

BY CLINTON N. PETERS, M.D., F.A.C.S.†

PRIMARY carcinoma of the male urethra is without doubt rarely encountered. Text books and works on pathology are notably deficient in case description, and authentic case histories with no errors of diagnosis are comparatively few in number; some less than one hundred.

Growths included in this list are squamous cell, columnar cell, papillary, and adeno-carcinoma. In the order of frequency, squamous cell accounts for the greater number.

The etiology of the condition is clouded by a series of suggestions in my opinion adding nothing of value, and I feel that *age* is the only constant factor running through the series. The youngest case I have been able to find is 38 years and the oldest is 79 years. If gonorrhea, stricture, leucoplakia or any chronic inflammatory process is of importance, their interpretation is so little in sequence that no definite conclusion can be drawn.

For example having the male gonorrhea percentage relatively high, and a carcinomatous occurrence extremely rare, would not allow of a distinct relation because one or several of the latter has passed through a gonorrhea. The same is equally true of stricture, and add to that that the usual first symptoms of urethral carcinoma are identical with those of stricture, due to pressure of the growth on the canal, or encroachment on its lumen, and an altogether confused state of causes and results is apt to ensue.

Case reports by O'Neil, Barney, Kretschmer and others are instructive. Young and Davis devote some space to the subject and conclude that the tumor is rarely seen or diagnosed early enough for radical treatment, and that when the tumor arises from the deep urethra, and extravasation or fistula has ensued, there is little to be expected from operation, X-ray or radium.

The following case is here reported for the first time:

Mr. M., age 42, white, single, laborer, complained of inability to urinate.

Family history was negative.

Past History: Negative to venereal infection.

Present History: Three months ago patient fell from an elevator striking on the perineum on the corner of a packing case. The condition was not thought to be serious, but at the time there was some hematuria. This history was obtained from the patient who considered himself eligible for industrial accident compensation, so that I cannot vouch for the truth. There seems to be no question of a fall and injury which was reported to the foreman and compensation was paid.

Two months later he noticed some difficulty in urinating, and the condition has progressed until there is at present complete retention.

Physical Examination. The patient is 5 feet 7 inches high, weight 145, well developed. Heart and lungs negative. B. P. 140-90; Blood haemoglobin 70%; Count reds 4,000,000, white 10,000; Blood sugar .11; Blood urea 20 mil.; Blood Wassermann negative.

Abdomen shows a distended bladder, and in the perineal region, there is a hard indurated non fluctuating mass extending to the scrotal margin. This is tender to pressure and very red and inflamed. Attempted catheterization met obstruction in the deep urethra and some hemorrhage resulted. Filiforms would not pass the obstruction. I believed the condition was one of extravasation of urine with possible abscess formation due to stricture, and sent the patient to the surgery for perineal section.

On incision I encountered some pus and urine in the tissues but very little necrotic tissue. The inflammatory portion seemed to be on the edges of a distinct mass of hard tissue which had not broken down and I took sections of this tissue for examination. Following the laboratory report I sent sections to three different pathologists. I will quote their opinions.

Dr. Mallory, Boston City Hospital:

"Epidermoid carcinoma complicated with considerable inflammation."

Dr. Hewat, Maine State Laboratory:

Sections show a dense fibrous stroma which is hemorrhagic and contains leucocytes and lymphocytes. In addition the fibrous tissue is being infiltrated with dense masses and solid cords and independent clumps of cells which are epithelial in type, showing wide variation in shape, size and staining reactions. Also under the oil emmersion numerous cells can be seen in mitotic division. It is an infiltrative growth, epithelial in type and malignant in character.

Dr. Warren, Maine General Hospital:

The bulk of the tissue is granulation or inflammatory tissue. In areas of this tissue numerous spaces filled with epithelial islands, and small collections with epithelial pearl formation occur in the stroma. The diagnosis is chronic inflammation and epithelioma. I cannot account for this except as an epithelial growth pushing up from the urethra.

At the time of operation there was no break in the skin, no evidence of any previous scar or healed fistula. More careful examination of this case revealed extensive metastases. I felt that the case was beyond any local treatment. Perineal drainage was established. The patient died due to his carcinoma five months later.

DISCUSSION

A. L. CHUTE, M.D., F.A.C.S., Boston: It is an interesting coincidence that today I operated upon a case of recurrent carcinoma of the urethra. This patient I first saw in 1911 when he had a stricture of the urethra of the common post-gonorrheal type. He was then in his forties. I cut a tight place at the penoscrotal angle and curetted out a cavity behind the stricture. It was a year before he wholly healed. Then I saw him in 1912, when he was healed. He came to me next in 1919 and said there were times

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when a little opening appeared and a little urine or pus was discharged. I passed sounds up to 28F. I did not see him again until 1926 when he had a mass to the left side of his perineum and a fistula near the penoscrotal angle, from which I expressed a piece of wadded hair about the size of a lima bean. The mass in the perineum was so hard that I was suspicious of its character and advised exploration. The patient, however, did not return until August 1927, at which time I operated and removed a mass of hard tissue as large as a small plum and a considerable portion of the left side of his urethra that was adherent to it. It had also gone into the left crus of the corpus cavernosum a part of which we excised. This patient made a good surgical convalescence, his wound healing entirely. The removed tissue proved to be carcinoma. A month ago this patient returned with a hard mass which I operated upon today. This mass was bigger than a horsechestnut and when I loosened it up I found the urethra went right through it. I cut out a section of the urethra and sewed the ends together. The mass was very hard and seemed to be a recurrence of the process that I had removed previously.

Some time ago I saw a man whose urine had been shut off suddenly and upon whom I had to do an emergency perineal section. The urethral tissue was very suspicious. I drained this man and took some tissue for microscopic sections, that proved to be a primary carcinoma of the urethra. This man has since died of recurrence.

WALTER D. BIEBERBACH, M.D., F.A.C.S., Worcester: Two days ago I operated on a case similar to that of Dr. Peters. There was a urethral fistula in the deep perineum with considerable infiltration and an impassable stricture at the bulbo-membranous junction. The patient passed most of his urine through this fistula. The infiltration and nodular mass followed along the course of both corpora cavernosa. The man was sixty-three years of age and gave a history of gonorrhea many years ago and severe perineal trauma as the result of a fall.

Preoperative diagnosis was stricture of the deep urethra or carcinoma. Operative diagnosis was carcinoma. Operation consisted of external urethrotomy and insertion of perineal drainage tube. The wound was allowed to remain open for further treatment. I am sure the laboratory report will be carcinoma of the same type that Dr. Peters reports tonight.

J. DELLINGER BARNEY, M.D., F.A.C.S., Boston: Some years ago I reported three cases which I saw myself and subsequent to that report I have seen another. They all came into the hospital with symptoms of stricture of the urethra more or less obstructive. One man had retention, and the last one was operated on for stricture. I couldn't get a guide into the urethra. All the writers on the subject have found that the principal diagnosis which had been made in every case was stricture with periurethritis or periurethral abscess. So apparently it is an easy thing to miss until you come to operating on the parts.

C. N. PETERS, M.D., F.A.C.S., Portland (closing): There is nothing much further I can say. As I said, I missed the diagnosis until the time of operation, and at the time of operation the tissues were unusual, and I took out sections, and following the pathological report I found the thing had extended to the inguinal glands, and it didn't seem advisable to do anything radical. It proved to be a very malignant thing as the short duration of life will bear that out.

A CASE IN WHICH INTESTINAL PATHOLOGY APPARENTLY CAUSED SYMPTOMS IN THE UPPER URINARY TRACT*

BY ERIC STONE, M.D.†

CASE History No. 481. G. F. Female, single, 21 yrs. trained nurse.

Chief Complaint—frequency and burning on micturition.

Family History—Father and mother living and well, three sisters living and well. Three aunts with whom the patient had never lived had pulmonary tuberculosis.

Present Illness. Jan. 5, 1921. Since an attack of influenza three years before, which was associated with an acute cholecystitis for which drainage was done, the patient has had almost constant frequency of micturition to the extent of q1°. At times there was some burning on micturition. No dysuria, pyuria, hematuria, retention, incontinence, or weakening of the flow. The trouble was exaggerated by the menses. No nausea or vomiting except that associated with painful menses. No acute colic or kidney pain. Never catheterized.

Past Illnesses—Measles, chicken pox, and whooping cough in childhood. Five years ago had typhoid fever complicated by acute appendicitis, appendectomy being done at that time. Three years ago had influenza complicated by acute cholecystitis, at which time the gall bladder was drained. No cough, sputum, night sweats. Gains and loses in weight irregularly losing 8-10 lbs. in a couple of weeks and regaining it in 10 days. Frequently runs an evening temperature for 3-4 weeks at a time and for no apparent cause, the degree varying from 99°-101°. Basic temperature seems to be 97°. Menses began at 13. Always painful, but more so lately. Pain is relieved only after the first day of the flow, but then a severe backache appears and lasts for the last 3 days of the flow. There is sl. irregu-

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larity of appearance. Scant flow. No leucorrhea. Frequently has fainting spells during the period. Physical Examination—Eyes, nose, ears, throat are normal. The tonsils are small and not reddened. The tongue is clean. The teeth are in good condition. The thyroid is not enlarged. The lungs are normal as to sounds, spoken and whispered voice, tactile fremitus and percussion. The heart is normal in size, position and as to sounds. B. P. 108/60. Abdomen: Scars of drained right upper rectus and right lower rectus incisions. Edges of the liver, kidneys and spleen are not palpable. No masses, spasm, or herniation. Vague tenderness in mid epigastrium. Pelvic: Uterus is small, anteflexed, movable, non-tender, and regular in shape. Left ovary is palpable and tender. No endocervicitis or discharge. Reflexes—All present and show no irregularity or exaggeration. Glands: No palpable glands. Bladder capacity 163. Urine Analysis: Clear, 1022, acid, no albumen or sugar; sediment shows no leucocytes, erythrocytes, casts or abnormal crystals.

February 7, 1921. Has had five bladder irrigations. The frequency has stopped, but the burning persists and for a week when she voids complains of pain in the right kidney region, relieved at the end of micturition. Urine sediment shows no leucocytes or erythrocytes. Culture is sterile, t.b. stain is negative and smears show no bacteria.

May 12, 1921. Improved markedly up to May 4 when a menstrual period began. With the onset she developed a severe, colicy pain in the left side which persisted until relieved by morphia 5 hours later. Pelvic examination shows tender masses in the region of both ovaries. Urine: alkaline, sl.p.tr. of albumen, no sugar, the sediment shows no leucocytes or erythrocytes.

July 8, 1921. Felt perfectly normal until the onset of a period June 25 when she suffered such severe lower abdominal pain that morphine was administered. There was marked tenderness throughout the pelvis on bi-manual examination but no masses were felt.

February 2, 1922. Has been well except for mild pain at the periods until a week ago when frequency and burning of micturition reappeared. The urine sediment shows an occasional leucocyte and a slight amount of mucus.

June 17, 1922. Has had no period for 4 months. The urinary function is normal. For a month there has been a constant dull ache in the left lower quadrant.

June 27, 1922. Operation (by Dr. Pitts). Left Salpingo-oöphorectomy and modified Gilliam Suspension. Both ovaries were slightly cystic, the left more markedly so. Many adhesions were found in the region of the gall bladder. The patient made an uneventful recovery.

November 23, 1923. Much frequency and initial dysuria, and burning of urine. Urine, sp.gr. 1028 acid reaction, sl. p. tr. of albumen, no sugar, sediment shows mucus, few epithelial cells and rare leucocytes.

December 12, 1923 (Dr. Stone's record No. 481). Despite 12 bladder treatments since October 31, 1923 has shown no improvement. Referred for cystoscopy. Physical Examinations shows left c. v. t., kidneys not palpable, marked tenderness along the course of the left ureter, which can be palpated throughout its lower third as a thickened, tender cord. Evening temperature of 99°-101° for a month. Cystoscopy. Instrument enters the bladder easily. The capacity is 63 and no residuum. The mucous membranes are everywhere dulled. There is slight hyperaemia about the trigone. No stones, ulcers, tumors, diverticulae, or trabeculae seen. At the lateral end of the right ureteric ridge there is a slight pocket 1 cm. deep. The orifices are functionally and morphologically normal. Clear urine observed issuing in rythmic jets from each orifice. A No. 6 catheter passed freely to the left pelvis, causing severe backache as it passed an area 3 cm. above the orifice. A slightly flakey urine was collected and 3 cc. of 1% Ag. No. 3 solution was injected into the pelvis. This left urine specimen showed no leucocytes, no t.b. on stain, and the culture was sterile. A guinea pig inoculated with the urine was autopsied January 26, 1924 and showed no evidence of t.b.

December 4, 1923. No pain since cystoscopy and frequency and burning gone.

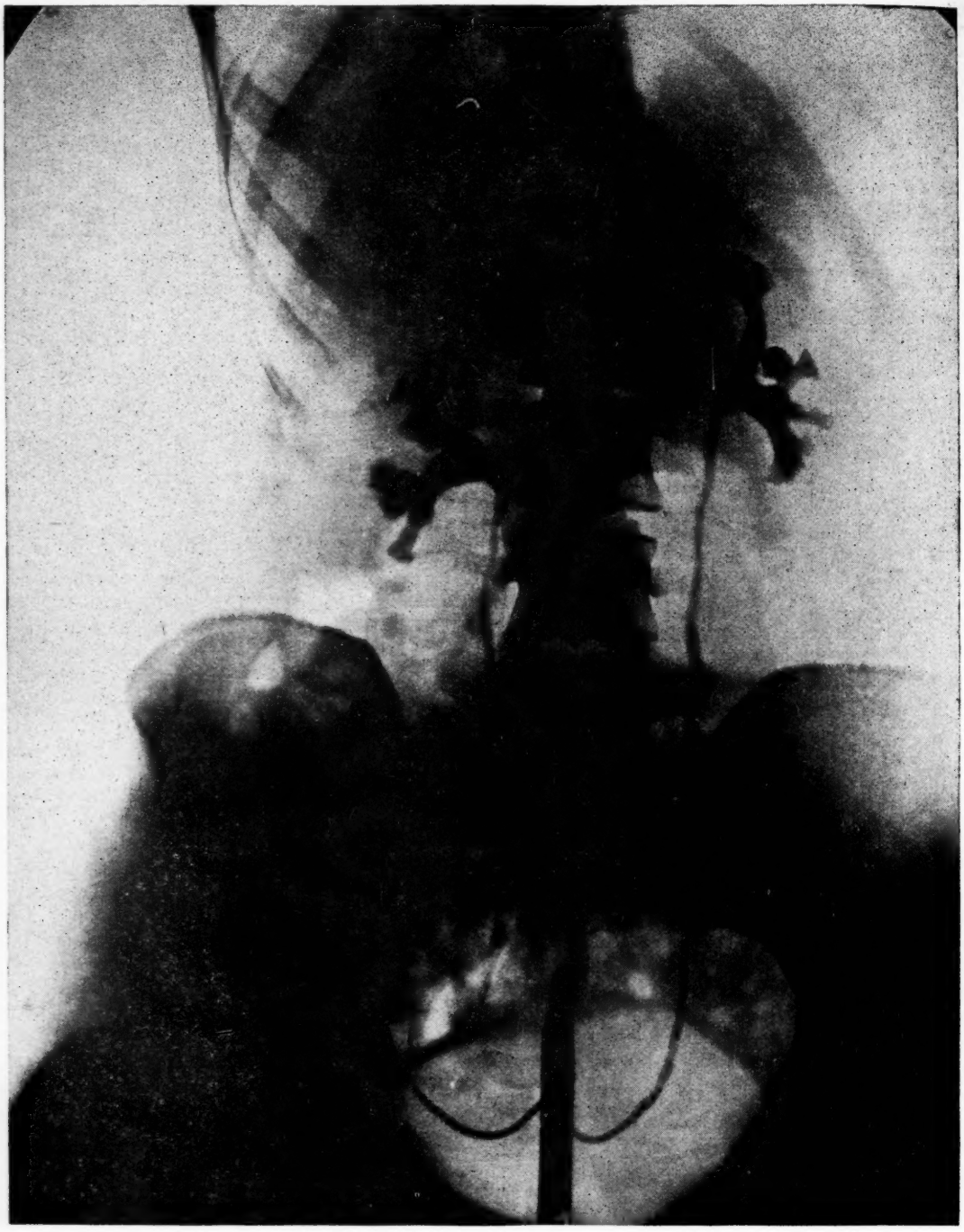
January 16, 1924. During a period which began 6 days ago the pain in the left lower quadrant recurred and has persisted. At cystoscopy a No. 8 bulb catheter passed a point 5 cm. above the left orifice with difficulty, then passed freely to the pelvis. On removal later, no appreciable "hang" was made out at this point. A slightly turbid urine was collected from the left side which showed a few leucocytes, many crystals and few epithelial cells. The t.b. stain was negative and the culture was sterile. Lavage carried out.

May 21, 1924. During the last four months has had five attacks of left ureteral pains, each immediately relieved by dilating the left ureter, the last dilatation having been carried out today.

November 20, 1924. (P. C. H. record No. 20, 459). While acting as nurse in the hospital developed a fever and a sore throat last night. Admitted to the ward with temperature of 101.4°, reddened fauces, but no exudate. Throat cultures are positive for diphtheria. November 21 given 10,000 units of diphtheria antitoxin with a drop in temperature from 102° to 97° in 12 hours. Eight hours later there was a sharp rise in temperature to 100.6° associated with severe left costovertebral pain. She only voided once in 24 hours and that amounting to 6℥ of urine. Seen by me at this time. There was marked left c.v.t. and the kidney was definitely palpable and enlarged. The next 12 hours she voided 52℥ of urine, the pain and palpable mass disappeared and the temperature dropped to 97°. Culture and sedimentation of the urine each day while in the hospital failed to show a positive culture of t.b. in smear, or any leucocytes or erythrocytes. Plain X-ray plates of the genito-urinary tract November 28 were negative. On this day throat cultures were negative and she was discharged November 29.

November 27, 1925. Since discharge from the hospital has fifteen dilatations and lavages of left ureter, each time with immediate relief of left ureteral pain, the interval before recurrence of the pain varying from a few days to several weeks. Three months ago for a period of several weeks complained of retention of 24 to 40 hours duration. Catheterization after one period of 36 hours of retention revealed 6 ounces of sterile urine which was chemically normal. Question of malingering. Guinea pig inoculated nine weeks ago shows on autopsy no evidence of t.b.

January 1, 1926. R. I. H. Record No. 194608.
Five days ago had a sore throat. The next day a severe pain began in the left kidney region, steady, non-radiating and lasted 12 hours when it was finally relieved by morphine. Admitted today with a temperature of 101°. January 1, 1926. Catheter passed to left pelvis, no increase in pelvic contents. Urine clear, sterile, few r.b.c. and leucocytes found in the sediment. T. b. smear negative. Guinea pig inoculated was autopsied February 23, 1926, and showed no evidence of t.b. Catheter left in place 8 hours at which time a lavage of 1% mercurochrome was done. Pain completely relieved. January 8,



Bilateral Pyelograms.

1926, cystoscopy was done, X-ray catheters being passed to both pelves, that on the left causing pain similar to that which she suffers during her "attacks".

	Right Specimen	Left Specimen
Sediment	no leucocytes, few erythrocytes and epithelial cells	few epithelial cells few leucocytes
Smear +	few Gram + cocci	few Gram + cocci
T.b. Stain	negative	negative

Appearance time of dye after i.v. injection	7 minutes	8 minutes
Output of Dye 15 min.	8%	10%
Culture	sterile	sterile
Guinea pig	negative	negative
	Feb. 8, 1926	Feb. 8, 1926
K. I. sol. used	8 c.c.	6 c.c.

Pyelograms and plain plates show no deviation from

the normal. X-ray plates of sinuses, teeth and chest were normal. G-I series normal. Discharged "well" January 12, 1926.

March 21, 1927. Has had frequently recurring attacks of left lower quadrant and kidney pain, each immediately relieved by dilatation 8 of which have been done since the last note, but the pain now recurs at intervals of from 3 to 9 days. The last done 5 days ago gave no relief. Has lost 11 lbs. and is running an evening temperature which goes as high as 103°. The mass noted at the last visit is present and is tender. Referred to the R. I. H.

March 22, 1927. R. I. H. No. 7 catheter passed to left pelvis, 5 c.c. urine obtained by suction. Phenolsulphonpthalein appeared in 5 minutes after i.v. injection and 15% was recovered in 15 minutes. Catheter left in place 8 hours during which time the pain was completely relieved. Lavage of mercurochrome done at end of this time. Two hours later the temperature was normal and remained so until discharge. Urine was normal in every respect and a guinea pig inoculated was autopsied June 4, 1927, and showed no evidence of t.b. Discharged March 26, 1927.

March 16, 1927. Developed a sore throat 4 days ago. A few hours later developed severe pain in the left kidney region requiring morphine for relief. A No. 8 catheter met some obstruction on passage up the left ureter at a point 5 cm. above the orifice, but eventually passed and a lavage was done. She wore the catheter home from the office and left it in place for 10 hours, with complete relief. Pelvic and abdominal examinations showed the same mass as found at the few preceding examinations.

April 2, 1927. Relief after the last dilatation was only for 4 days. Two further dilatations were done giving prompt relief, but followed in a day or two by recurrence of the pain. The mass remains as above.

April 4, 1927. R. I. H. record No. 206026.

April 5, 1927. Operation—Exploratory Laparotomy (Dr. Pitts and Dr. Stone) Gas O anesthesia. Abdomen opened through the former transverse suprapubic incision. The omentum was found adherent to the parietal wall on the left side of the pelvis near the point of entrance of the round ligaments. The mass was the size of an English walnut and under the omentum were some adherent loops of the small intestines. On freeing this mass and separating the omentum and the loops of bowel an abscess was found at the center of the mass and lying free in about 23 of pus was a foreign body that looked like a fish bone. There was a shallow ulcer where the mass was adherent to the parietal wall. A piece of this was excised and it was covered by peritoneum. No perforation, tubercles, tumors or ulcers were found in the intestines. The left ureter was palpated from within the broad ligament to the pelvis of the kidney and found normal. The kidney was normal in size, position and shape. The gall bladder could not be felt because of adhesions. The right ovary was normal. The caecum was redundant. The abdomen was closed in layers without drainage. Pathological Report. A piece of omentum 6 by 4.5 by .5 inches embracing a firm nodule 2 cm. in diameter, and a piece of parietal peritoneum showing an ulcer 1 cm. in diameter, with elevated, rounded edges and a ragged hemorrhagic base. Microscopically these showed only chronic inflammatory changes. There was a foreign body 2.5 cm. long and 1 mm. thick, round in cross section, tapering toward one end and showing a continuous shallow curve throughout its length. Considered to be a fish bone. The patient made an uneventful recovery and was discharged April 24, 1927.

March 19, 1928. Since the removal of the fish bone the patient has had no recurrence of the lower left quadrant pain, no urinary symptoms, and none of the attacks of left kidney pain.

SARCOMA OF KIDNEY: CURED*

BY CLYDE LEROY DEMING, M.D., F.A.C.S.†

THE cure of a malignant condition in one of the intra-abdominal organs is so rare that its details should be made known. Truly there are but too few of these cases. The time elapsed has been six and one-half years—not enough for some types of neoplasms, but I believe sufficient for this case.

REPORT OF CASE

History—A boy, aged 29 days, admitted to the urologic service of the New Haven Hospital, Nov. 22, 1921, the first child in a family in which there had been no other pregnancies, gave an unimportant family history. At birth, which was natural and spontaneous, the weight was 7 pounds 8 ounces (3,398 gm.) During the first, third and fourth days of life, the child passed blood in the urine. On the fourth day especially, the urinary discharge resembled pure blood which was bright red. Blood was also noticed in the stools at this time by the family physician. Subsequently, no blood was noted from either tract. The child, although a breast-fed infant, weighed only 5 pounds 4 ounces (2,378 gm.) It then began to gain, took the feedings well and slept well. The stools were often green and their passage was attended by a moderate amount of colicky pain. Vomiting and regurgitation were present, but were not a marked feature until a week before entry to the hospital, when the child vomited half or more of every feeding. The mother had noticed that the abdomen had gradually become larger, and she had thought it unusually large since birth.

Physical Examination—The weight was 7 pounds (3,171 gm.); rectal temperature 99.6 F; pulse, 96. The child was pale and poorly nourished. There were no congenital malformations of head or extremities. The main features of interest were found in the abdomen, which was enlarged, especially on the right side. Collateral circulation was present in the large, distended superficial veins of the abdominal wall. The outline of a mass could be seen in the right side during respiration. Palpation revealed a mass filling the whole right side of the abdomen and extending a finger's breadth beyond the navel. The lower border reached to the crest of the ilium and the symphysis pubis. The demarcation between it and the liver was not definite. The upper border of the liver, as noted by percussion, reached to the fourth interspace in the right nipple line. The lower pole of the mass was rounded and smooth. Its surface was also smooth and tense, and gave the sensation of a cystic tumor. It descended slightly with respiration, and could be moved slightly upward and a little to the left. The percussion note over it was everywhere flat. The spleen was not enlarged. The left kidney could not be felt. A roentgenogram

*Read before the New England Branch of the American Urological Association, April 3, 1928.

†For record and address of author see "This Week's Issue," page 293.

showed that the right side of the abdomen was occupied with a mass which pushed the intestines over to the left side.

Cystoscopic Examination—Enough ether was administered to produce relaxation, so that a child's cystocope could be introduced. The bladder capacity was 100 c.c. The inner surface of the bladder was of normal appearance. The ureteral orifices were large, and were normally situated. The left functioned, but the right did not. A No. 5 catheter was passed for a distance of 4 cm. up the right ureter where it met an obstruction. No function was obtained, while the left could be seen to act more rapidly than normal. An effort was made to take a ureterogram, 7 c.c. of sodium bromid solution being injected. The roentgen ray showed the ureter to be well filled and its course abnormal. It passed from the right side upward, toward the left, opposite the second lumbar vertebra on the left, thence upward and outward toward toward the left, opposite the second lumbar crescent shaped, and lay more or less horizontally, opposite the twelfth dorsal vertebra. The large and small intestines were seen on the left side of the abdomen.

Laboratory Findings—The urine was free from blood, albumin, pus cells and casts; the red blood count was 2,920,000; hemoglobin, 65 per cent.; white blood count 9,800; differential count: polymorphonuclears, 70 per cent.; large mononuclears, 6 per cent.; small mononuclears, 22 per cent.; transitionals, 2 per cent. A blood smear showed nothing of note. The Wassermann reaction was negative.

The clinical diagnosis was cystic tumor of the right kidney, most probably sarcoma.

Operation—A nephrectomy was done under local anesthesia (procain, 1:200). The tumor was so large that approach was made through the right rectus muscle by an incision extending from the costal margin to the pelvis. The muscles were separated, and the peritoneum was opened, exposing the tumor, which extended from the liver above and overlapped by it, to the pelvis below and to the umbilicus medially. It was adherent above to the liver and gallbladder, medially, to the ascending colon, and at its lower pole, to the cecum and appendix. The adhesions were carefully freed, and the tumor was mobilized. But, as it was otherwise impossible to demonstrate the pedicle, the cyst was tapped, and about 100 c.c. of blood and gelatinous fluid was aspirated. The pedicle was then clamped and ligated. The wound was closed in layers, with a small rubber tissue drain inserted at the lower angle. The patient withstood the procedure quite well, showing marked shock only when the pedicle was being held tense.

Convalescence—The postoperative course was uneventful save for slight superficial infection of the wound, which was controlled with mercurochrome-220 soluble. The skin separated, but the muscle sutures held. Although the child was markedly emaciated, and the transformation from breast to artificial feeding was in process, it gained weight, and was discharged in thirty-four days, completely cured. There was a bulging of the right side of the abdominal wall, as a result of weakness of the right rectus muscle, but there was no hernia. This bulging persisted for about six months. The child was seen twelve months after operation. It weighed four times the original weight, and was able to walk at the age of 13 months.

The Tumor—Grossly, the specimen was a cystic kidney, the size of a grapefruit. Section showed that it consisted of one large cyst, not connected with the pelvis, which was flattened, and extended along the side of the thin wall of the cyst. The ureter was of normal size and was patent. There was a very small amount of renal tissue, which extended along the pelvis and included the cyst wall. The cyst contained sanguineous fluid, organized blood clot, and grayish white, soft friable tissue. There were also small areas of yellowish white tissue projecting from different portions of the cyst wall, the greater portion of the growth being opposite the pelvis, but not involving the cavity of the pelvis, which was normal, white and glistening. Several blocks were cut for histologic examination.

Microscopically, the thin wall of the cyst showed a simple fibrous wall, and in places a thin layer of kidney tissue presenting no other changes than that due to pressure. The tumor consisted of a dense mass of spindle shaped cells, which in most sections were densely packed together. In a few areas, the structure was more delicate, simulating a myxomatous tissue, with relatively long fusiform-like cells separated by a small amount of nonstaining intercellular stroma. The tumor cells were large and showed marked variation in size and shape, and in the chromatin of their nuclei. Many of the cells were deeply pyknotic. No typical mitotic figures were seen. There were occasional minute focal accumulations of brownish pigment. There was nothing to suggest a mixed tumor.

The pathologic diagnosis was congenital spindle cell sarcoma of the kidney.

COMMENT

The time element in the cure of malignant disease varies much with the disease and surgeon. In some instances it is doubtful if one can truthfully place a time limit. However in such a condition as here reported, a congenital sarcoma which in similar cases, has the characteristic of being very malignant with early recurrences, has not shown any metastasis in six and one-half years and the child has developed physically and mentally in a normal way, we are justified in assuming the end result is a cure.

It is this type of case which demands the widest attention and an investigation of the causes for the end results. But statistics fail to give us much satisfaction for only a few cases are recorded.

What factors influence success in these cases? Certainly the first is an early diagnosis. This is not always possible as the child is not brought under observation until late in the disease. Early observation by the physician is delayed several months until the child becomes thin and emaciated and riddled with metastases. Most cases are hopeless from the beginning. Even with the present day equipment and the ease with which infants may be cystoscoped, there should be no difficulty in making a correct diagnosis very early.

There is only one treatment for these cases and that is nephrectomy. We have no control of the etiology. The operative mortality rate according to Walker's figures in seventy-four cases was 38 per cent. Death due to hemorrhage and shock and to the anesthetic are the immediate factors. These should all be eliminated by the use of local anesthesia and present methods allaying shock and promoting renal secretion. During the past ten years quite a number of successfully operated cases are reported, thus indicating that the fault for cure need not be looked for on the operating table any longer.

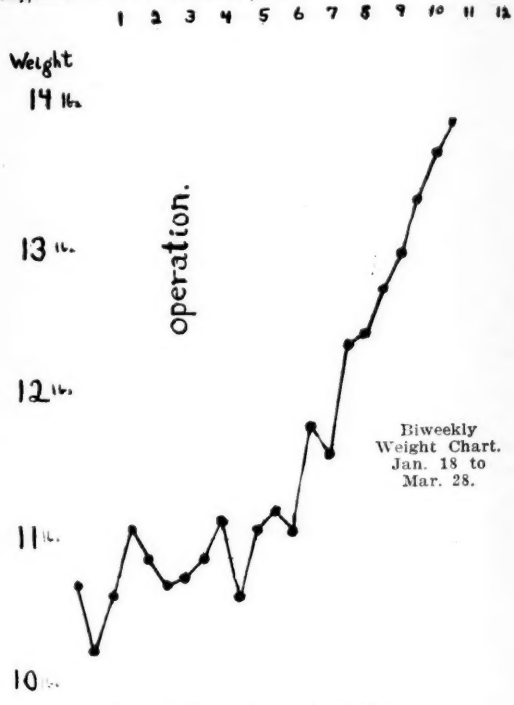
As far as prevention of metastases is concerned we are at a standstill and the only alternative is an early diagnosis and treatment. Radium and X-ray are fast losing prestige and it is only when one can view the case in retrospect that one sees the futile use of these treatments.

The end result of this disease is now five per cent. cures. If no operative procedure is attempted eight months is the average length of life while with operation it is 16.77 months. Walker reports only one cure in a patient under one year of age and only four under fourteen years of age. If we are to expect better results in the treatment of sarcoma of the kidney we should stimulate interest and progress by the reports of successful cases.

A CASE OF PYONEPHROSIS IN INFANCY*

BY CHARLES G. MIXTER, M.D., F.A.C.S.†

ON January 18, 1928, a baby girl, age nine months, was referred to me by Dr. McLaughlin of Providence, R. I.



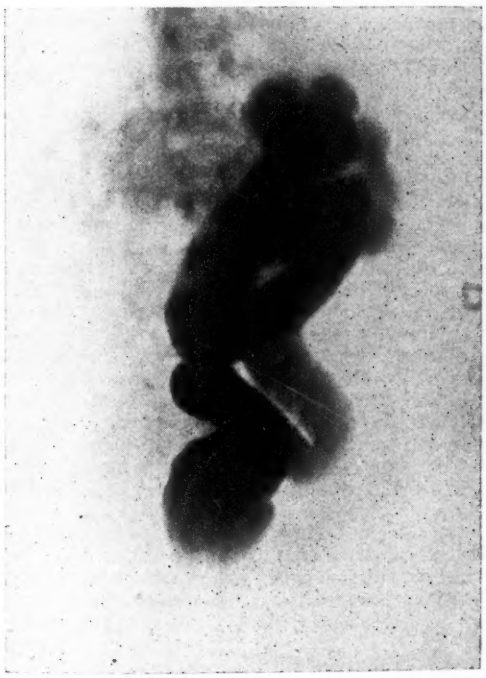
Case of Pyenephrosis in Infancy.

Family history and past history negative. B. W. 7½ lbs.

Present Illness: Did remarkably well until seven months of age. Weight then was 18 lbs. At this age, patient began to vomit occasionally after feedings. Vomitus never contained bile. It was never projectile nor fecal in type. About this time the infant developed a slight cold with fever, seemed to recover from the cold, but the fever has persisted and the child has lost weight. Temperature fluctuates, rising to 103 on occasions. Formula changed without decrease of vomiting. Consultant found pus in urine, treated baby at Rhode Island Hospital. Baby has lost weight (fell to 11 lbs.) and no improvement noted. For several weeks there has been marked diarrhea.

Physical Examination: Fairly well developed but poorly nourished infant, very pale, slightly cyanotic, dehydrated, obviously acutely ill. Admission weight 10 lbs. 11 oz. Temperature 100. Skin, dry and elastic. Eyes, somewhat sunken. Mouth, lips pale and slightly cyanotic. Tongue shows thrush. Pharynx somewhat reddened. Abdomen distended and tympanitic. Liver palpable 1 cm. below costal margin. Spleen not felt. A mass is palpable in r. u. q. below liver on bi-manual examinations.

Lab. (Admission) Urine, macroscopically loaded with pus. Sediment comprises about one third of specimen obtained. Odor foul. Mic. ex. much clumping, loaded with white blood cells. Large trace of albumin. No casts, no Rbc. Blood: Hgb. 55%. 4,300,000. Wbc. 11,900. 65% Pmn.



Cystogram, with Reflux into Double Hydro-ureter and Hydronephrosis.

Course: Condition of patient so precarious that no further examination was deemed advisable. Given clyses for dehydration; breast milk feedings. The following day cystograms were obtained. X-ray Report: Cystograms show a bladder shadow of moderate size. There is a reflux of the iodide up into the double ureters on the right which are enormously dilated and tortuous. The renal pelvis and calyces on this side are also very markedly dilated. IMP. Marked hydro-nephrosis and hydro-ureters on the right. There is no evidence of a ureter on the left although there may be a kidney on this side. The picture does not suggest a double kidney on the right.

On catheterizing bladder thick creamy pus was

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†For record and address of author see "This Week's Issue," page 293.

obtained. No organism was seen on smear. Renal function test was unsatisfactory but was over 10%; considerable amount of specimen lost.

Owing to the serious condition of the patient neither cystoscopy nor operation was deemed advisable. Bladder was irrigated twice daily. In spite of clyses, breast milk feedings, and some improvement in the diarrhea, there was further loss of weight, although the child appeared brighter and there was some improvement in the general condition. At times, on irrigating the bladder, 30-40 cc. of clear urine were obtained, following which practically pure pus was evacuated when the child strained and cried.

A second renal function test showed 20% plus, the N. P. N. 23%. Culture from the urine showed B. coli; the Wassermann negative; tuberculin negative.

As no definite improvement was being made under palliative treatment a right nephrectomy was advised, although no definite data had been obtained regarding the left kidney. It was felt that in the child's precarious condition a cystoscopy with catheterization of the left ureter would be nearly as formidable a procedure as removal of the kidney, and in view of the low N. P. N., the relatively high renal function test, and the evident destruction of the right kidney as demonstrated by the cystogram, it was felt highly improbable that there would be extensive kidney destruction or absence of the left kidney. Several clyses were given the day before and a transfusion immediately preceding the operation. A rapid nephrectomy was done, under ether anesthesia, through a lumbar incision, the pedicle tied with catgut, the ureters sutured into the lower angle of the wound, temporary ties being left on the implanted stumps.

Little reaction followed operation. About one week later the bladder was irrigated by the introduction of a catheter and irrigated through the patent ureters in the lower angle of the wound. Ten days following operation there was a set-back—probably a mild broncho-pneumonia—but this rapidly cleared up, and since that time there has been a satisfactory gain in weight and general improvement. Vomiting and diarrhea rapidly subsided following operation. The temperature reached normal about twelve days after operation where it has remained. The urine steadily improved; three weeks following operation it was practically clear, only a few white blood corpuscles being present. Renal function taken 2½ weeks following operation was 40%. Six weeks following operation, before discharge from the hospital, the baby was cystoscoped and a pyelogram made of the left kidney, as it was felt that this information should be obtained in order to make a reliable prognosis and outline for future treatment.

X-ray report of the pyelogram: Pyelogram on the left: No. 1 film shows the small ureteral catheter filled with iodide and none of the opaque material has entered the renal pelvis or ureter. No. 2 film shows the ureter well filled and considerably dilated but there is no iodide in the renal pelvis. No. 3 film shows the renal pelvis and calyces well filled as well as the ureter and there is a sharp kink at the uretero pelvic junction.

IMP. Kink evidently causes considerable obstruction at the uretero pelvic junction.

At the time of the baby's discharge, a few days ago, the urinary sediment showed only an occasional leukocyte. The general condition was excellent and the weight was slightly over 14 lbs.

This case represents one of the causes of chronic pyuria, or chronic pyelitis as it is more generally termed by pediatricians. There is a marked uretero-renal reflux with dilatation of the ureter, often of enormous size, and dilatation of the renal pelvis and calyces with destruction of kidney tissue. Secondary infection usually occurs, and the persistent presence of pus in urine calls attention to the renal involvement. Such dilatations are seen in very young infants. It is encountered in either sex. It may be unilateral or bilateral. This condition may accompany other urological anomalies such as complete double ureter, in which one or both of the ureters to one kidney may be involved in the dilatation.

It is fascinating to speculate on the cause of the dilatation. If chronic infection were the sole cause it would be difficult to reconcile so great a dilatation with an infection of relatively short duration, (in this instance only four months,) whereas in another case infection may persist for a much longer time without the occurrence of dilatation of either the ureter or calyces. A defective neuromuscular mechanism might account for such a condition but one would expect to find both ureters involved and nerve involvement elsewhere would probably occur. The theory, similar to that held by some regarding megalo colon, that it is a congenital malformation, cannot be disproved but is not as satisfactory as an explanation founded on a mechanical basis. Obstruction to the urethra, or at the vesical outlet, will cause ureteral dilatation, but the effect is bilateral. The outline of the bladder wall by cystogram is irregular and there is marked trabeculation. Obstructions of this nature are seen in infant boys, but dilatation of the type considered here is frequently seen in girls also.

It has been proved experimentally in the normal bladder that the intracystic tension can be increased to the point of rupture without the pressure in the ureter rising. However, if the valve is incompetent the intraureteral pressure rises with distention of the bladder due to the elasticity of its wall and in the effort of evacuation a still greater pressure is produced before the vesical sphincter relaxes and urination starts. Such a persistent intraureteral pressure would well explain the enormous dilatation one finds and account for its occurrence either unilaterally or bilaterally. In support of this conception is the recent work by Gruber[1] on the experimental production of hydro-ureter without obstruction, in which ureteral dilatation was produced in animals by excision of the intramural portion of the duct. It would seem, therefore, that incompetence of the uretero-vesical valve offered the most plausible explanation.

REFERENCE

1 Charles M. Gruber: The Uretero-Vesical Valve and exp. production of hydro-ureter without obstruction. Proc. Soc. of Exp. Biology and Med., February, 1928. Vol. 25, No. 5.

SOLITARY CYST OF THE KIDNEY*

BY ARTHUR H. CROSBIE, M.D., F.A.C.S.†

THE large solitary cyst of the kidney is an entity and should not be confused with the smaller cysts occurring in various forms of nephritis and sclerotic kidneys. The condition is undoubtedly congenital in origin, but usually does not manifest itself until middle life when it has reached a size large enough to cause pressure symptoms.

So far as I can discover it is always unilateral. The cyst may attain a very large size. It never connects with the kidney pelvis. The remaining kidney tissue is as a rule normal.

The position of the cyst is usually at one pole of the kidney. In a small percentage of the cases it occupies the mid portion. It is more common in the female than in the male. The fluid is clear and straw colored and rarely bloody.

The condition is comparatively rare. In February 1924 Harpister, Brown and Delcher collected 93 cases and added two of their own. Later in 1924 McKim and Smith collected 120 cases. Some of these cases seem to me to be rather doubtful. Since then sporadic cases have been reported. In April 1924 George Gilbert Smith reported a large solitary cyst in a man 78 years. In 1925 Richard F. O'Neil reported a case and found 9 others in the records of the Massachusetts General Hospital. In 1927 Vonachen and Sprenger reported a very large cyst in a child of two years. In 1928 Colston reported a solitary cyst associated with a tumor of the kidney independent of the cyst.

The symptoms are entirely referable to the pressure of the cyst either on the remaining part of the kidney or on other organs. Hematuria is rare. The diagnosis as a rule is not made until operation, as there is nothing pathognomonic in the pyelogram.

The treatment is operative. Many times when the cyst is at one pole it is possible to resect and save the rest of the kidney.

My case was in a man of 42 years. Two years ago he had an attack of right renal colic accompanied by hematuria. He was seen at the Massachusetts General Hospital where he was advised to have the right kidney explored. This he refused. Following this he had frequent attacks of right colic generally associated with hematuria.

I saw him September 21, 1927, he was having pain in the right side accompanied by frank hematuria. Cystoscopic examination showed a normal bladder. Spurts of bloody urine came from the right ureter and clear urine from the left. The left pyelogram was negative while the right showed marked blunting of the calyces and considerable deformity of the kidney pelvis. I made a diagnosis of tumor of the right kidney and advised operation.

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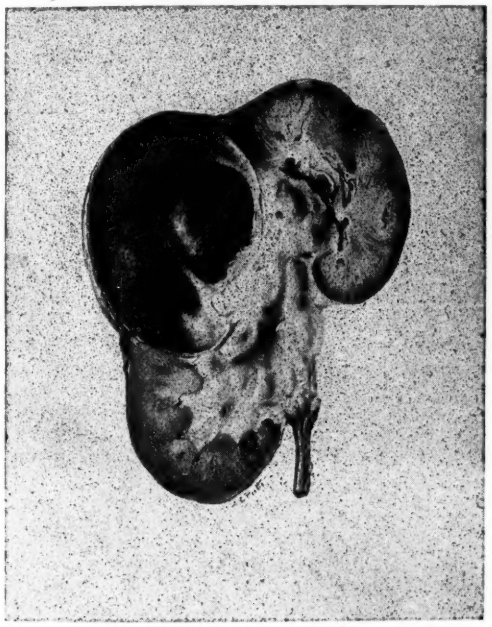
†For record and address of author see "This Week's Issue," page 293.

At operation I found a marked bulging of the middle third of the kidney which I took to be tumor. I removed the kidney and was not aware of the true condition until I received the pathological report from Dr. Lawrence Smith, which is as follows. Specimen consists of a kidney measuring 12x8x5.5cm. It is characterized chiefly by the presence of a large solitary cyst 6 cms. in diameter, occupying practically the entire middle sector of the kidney. The surrounding renal tissue at either pole is rather pale in color. The cortex and medulla are fairly well demarcated but merge to some extent. There is a suggestion of a yellowish color, indicating moderate fatty changes. The glomeruli are not definitely demonstrable on section. The pelvic fat seems somewhat increased in amount and the pelvis itself is moderately dilated with flattening of the renal calices. The ureter is slightly thickened.



Drawing showing solitary cyst in the mid portion of the kidney.

The cyst on section is found to be lined by a smooth shiny glistening tissue, and on the external portion, which rises 3 to 4 cms. above the surface of the kidney, is practically transparent. The blood vessels can be seen traversing this membranous-like tissue, much as one sees them in the mesentery of a frog. There is an incomplete septum which partially lobulates the cyst, giving it a suggestion of two chambers. The fluid contents are pale and clear. There is no evidence of any infection grossly, either of the cyst or of the kidney substance itself. The lesion apparently is one of those infrequently encountered large solitary cysts of the kidney.

Diagnosis: Solitary cyst of the kidney.

DISCUSSION

DR. FLETCHER H. COLBY: I wonder how uncommon solitary cyst of the kidney really is. Whether people do not take the trouble to report it or whether it is uncommon, I do not

know. I have seen two such cases; one at the Massachusetts General Hospital which Dr. Porter operated upon, and one at the Peter Bent Brigham Hospital which Dr. Quinby operated upon. Both of these were typical solitary cysts of the kidney, very large, and in both of the cases nephrectomy was done. In these cases the cysts were of the lower pole which I think is the most common situation. Solitary cyst of the middle portion is very uncommon.

Pyelogram showing some distortion of the kidney pelvis.

J. Dellinger Barney, M.D., F.A.C.S., Boston: I had a case of solitary cyst about a year ago which proved to be of the size of a grape fruit. I made the diagnosis before operation. The pelvis was deformed and had every appearance of a new growth of the kidney. The man had hematuria and retention of urine. He had an enormous mass in his left loin, and I found this solitary cyst. The kidney elsewhere seemed to be good, so I trimmed off the cyst at its junction with the cortex, leaving a hole in the kidney, but what kidney was left was good and I saved it. I tried to dissect out the lining membrane of this cyst but found I was in close contact with the vessels, and there was a great deal of bleeding, and I stopped. It occurred to me that swabbing out this cavity with Zenker's fluid might do good, so I did this, and it didn't prolong convalescence or cause untoward symptoms, but the man made a good recovery. I don't know whether this fluid has been used to any extent for this purpose.

I do not think these cysts recur after simple excision of the walls; if the kidney seems to be in good condition it is worth while to save it when it is possible.

E. G. Crabtree, M.D., F.A.C.S., Boston: I think probably not everybody reports their cases of solitary cyst of the kidney. I reported three years ago to this Society a case of a tiny kidney found in the investigation of pyelitis. The kidney was a double kidney and had a normal half with a stone in the pelvis and an atrophic condition of the other half with a solitary cyst attached, the whole kidney being two and a half inches in length.

Since then I have found four others, one of which was of the lower pole with a stone where a resection was possible, and through the thinned lower calyx beneath the cyst it was possible to get the stone from the pelvis. The other was a hemorrhagic cyst of the solitary type in which

sarcoma was present. I haven't seen those cysts of the mid portion of the kidney such as are mentioned in the paper presented. The other case was one in which pressure symptoms were present simulating gall bladder symptoms.

A diagnosis of cyst may be approximated as Dr. Barney mentioned, by noting the difference in density between the kidney and cyst, the cyst being lighter.

In relation to Dr. Mixter's case—Recently Dr. Eades at the Lying-in Hospital showed me a new-born infant in which he could find no evidence of obstruction of the urinary tract, yet it had patent ureteral orifices and bilateral hydronephrosis. As Dr. Mixter has brought out in discussion, the duration of the hydronephrosis was of so short a time that infection could play no part in it; the cause seemed to be congenital absence of the uretero-vesical valve.

Charles G. Mixter, M.D., F.A.C.S., Boston: I was much interested in Dr. Deming's case. We have seen a number of cases of malignancy of the kidney at the Children's Hospital in all approximately 45. Of those some 25 have been nephrectomized, and of the total number there are only two alive and well following operation. There are two more recently operated upon, but those which have approached the category of cure are only two. They were both large tumors as you almost invariably see in children. The mother brings the child in on account of abdominal tumor found on washing the baby. Hematuria is very rare. Rarely we have seen the distant metastases. More often we have found local recurrences following operation, that is, extension to the deep lumbar glands and that has been a very prevalent cause of recurrence which is generally fatal within a year or a year and a half.

With regard to solitary cysts I can't say accurately how many we have had, but I know of three seen at the Children's Hospital, two of those were at the lower pole.

S. N. Vose, M.D., F.A.C.S., Boston: It is quite probable that solitary cyst of the kidney is an uncommon clinical finding, but I am beginning to think it is quite common pathologically. I had a case several months ago which was the second I had seen, but when I called the attention of the pathologist to it, he said that they are quite common and run in droves. In the dissecting room at Boston University this year, there were three instances of solitary cyst of the kidney among sixteen cadavers, two of them in the same cadaver, the condition being bilateral.

Eric Stone, M.D., Providence: In view of the lack of discussion I have the hardihood to present an idea or two of my own. It isn't unusual to find pathology in the alimentary tract causing pain or discomfort in the urinary tract —on the other hand it is common to find that pathology in the urinary tract causes gastro-intestinal symptoms.

The thing that interested me in the case I presented was not so much the reference of pain from the intestines to the ureter, but rather the relief of that pain by manipulation of the ureter. Why should the passage of a catheter up a ureter relieve ureteric colic which was due to a fish bone in the intestines? The pain was reflex. There was no demonstrable ureteritis, except at the onset when the ureter itself was palpable. In none of the pyelographic studies and at the time of operation, when the ureter was examined manually, was there any evidence of continued inflammatory reaction.

There seems to be another explanation of this symptom complex. There is the possibility of the reference through the spanchnic plexi from one system of organs to another, of sensory stimuli sufficient to set up motor responses in muscle structures capable of intrinsic activity. The ureteral musculature is of this type. I believe that a spasm of the ureter caused the ureteral colic and the temporary hydronephrosis (which at no time lasted more than 18 hours and was insufficient to leave any permanent dilatation of the pelvis), and that the passage of the catheter mechanically broke up the spasm. This left ureter may have been hyper-irritable because of the unquestionable ureteritis that must have been present early in the illness when the lower third of the ureter was palpable bimanually as an indurated, pencil like, and tender cord. The diagnosis of ureteritis is permissible even in the presence of persistent sterile cultures.

Clyde Leroy Deming, M.D., F.A.C.S., (New Haven, Conn.): Dr. Mixter alluded to regurgitation of the ureter. I have been greatly interested in this observation especially in children. We have been accustomed to do cystograms on practically every child and have been surprised to find it such a common occurrence. In the male especially we find obstruction such as those found by Dr. Bugbee and his associates in New York. Likewise we agree with Dr. Mixter that obstruction is not always demonstrable. With this point of regurgitation without obstruction in mind, I wonder if any of the doctors present have done cystograms or ureterograms on adult cases in whom they have transplanted ureters. I have had occasion to do cystograms in five or six of such cases because they have continued to show an infection in the urine. All of them show regurgitation after ureteral transplant. If one removes a portion of the bladder for cancer and transplants the ureter in the presence of infection, or if post-operative infection per-

sists, I believe there is a regurgitation. Cystograms show a regurgitation, and they are more or less comparable to those cases which you see in children in whom you get a severe infection which does not clear. I have ceased doing transplantations of the ureters except in rare cases.

CHARLES G. MIXTER, M.D., F.A.C.S., Boston: I have very little to say. We do see cases of ureteral obstruction, but, on the other hand, as Dr. Deming has said, there are cases in which you find no obstruction and you have to fall back on the diagnosis of an incompetent ureteral valve. That may be bilateral or it may be unilateral; and I think it is essential in the bilateral cases to rule out the presence of an obstruction lower down, that is to say urethral, as that is the only thing that would give hope of operative relief in that type of case.

ROGER C. GRAVES, M.D., Boston: Dr. Deming recalls the fact that while I was working on the subject of regurgitation I did a small animal series to determine the occurrence of reflux following transplantation of ureters into new positions in the bladder. In one series, the Coffey technique was used, approximating as closely as possible the oblique insertion which normally exists. In another group the ureter was simply carried directly through a stab wound in the bladder wall and secured in this position. When these animals were fully recovered and healed, the routine regurgitation experiments were completed. Interestingly enough those cases, which had had careful oblique transplants, resisted reflux in every instance. Regurgitation occurred however in the others.

H. A. CHAMBERLIN, M.D., Boston: Apparently solitary cyst of the kidney is not such a rarity. That the condition may be found rather frequently in autopsies or dissection is interesting.

From Dr. Crabtree's remarks I should say that cyst of the mid portion of the kidney is a rare finding.

THE EARLY DIAGNOSIS OF MALIGNANT DISEASE OF THE URINARY TRACT*

BY J. DELLINGER BARNEY, M.D., F.A.C.S.†

THE title of this paper is perhaps misleading in that it gives the impression that early diagnosis of malignant disease of the urinary tract is not only possible but frequently made. This is by no means the case. This may seem strange in view of the widespread and skillful use of various diagnostic instruments such as the cystoscope, ureter catheter and X-ray. As a matter of fact, the difficulty lies not so much in the inadequacy of these instruments or in lack of skill in their use as in the fact that malignant disease of the urinary tract may and often does give no symptoms whatever until it has progressed to a point where its complete and permanent removal is either doubtful or impossible. This desperate situation may be encountered by the doctor at the time of his patient's first visit.

No better argument could be made for routine annual or semi-annual physical examination. Such an examination would doubtless often be the means of discovering entirely unsuspected malignancy in kidney, bladder or prostate, either by the finding of microscopic blood in the urine, a mass in the loin or a prostate whose consistency was unduly firm or of nodular contour. On the other hand, it is fair to say that quite as many individuals might be given a clean bill of health, even though harboring malignant disease. If it could be demonstrated, as I think it could be with but little effort, that certain cases had been definitely cured of malignant disease which a routine examination had revealed in its incipiency, I feel that we would all stand back of the idea more than we do now.

I wish to make it clear that the term "malignant disease" used in my title is meant to include those neoplastic growths which may be benign at the outset but which become malignant with the elapse of time. All neoplasms are potentially malignant, especially those of the bladder.

The symptoms of malignant disease of the urinary tract are, in general, those of malignancy elsewhere. Pain, tumor, loss of weight, cachexia, interference with normal function—these perhaps are the chief symptoms. But in the urinary tract we have the most important symptom of all, namely hematuria. Although this is common, it is all too often regarded lightly. It is rarely, if ever, "idiopathic", "essential", or the result of "catching cold" or a "strain". In 1925 Kretschmer published his study of 933 consecutive cases of hematuria. In 833 a definite diagnosis was made. Seven hundred and sixty-four involved the kidney, bladder and prostate. Hematuria was due to malignant disease of these organs in 42%. Neoplasms of the kidney furnished over 11%, those of the bladder 76.5% and those of the prostate 34%. The studies of other writers have shown similarly convincing evidence that hematuria is always a symptom of the utmost importance and all are in agreement that not only its source but its cause should be investigated without delay. The hematuria may be only microscopic, a few blood cells being found during the course of a routine examination. While so small an amount of blood might appear once or twice as the result of some minor ailment, its persistence calls for investigation quite as much as when it occurs in macroscopic amounts. Blood may be seen in the urine on one or two occasions and not appear again for weeks, months or even years. If the patient has taken medicine meantime, it is easy for him to suppose that this is the cause of his clear urine. I do not believe, however, that a drug exists, especially those taken internally, which will cause a cessation of hematuria. Often the patient will have noticed that his urine is clear at the start but becomes bloody toward the end of, or just after, urination—the so-called "terminal" hematuria. This is presumptive evidence that the cause of it lies in the bladder, prostate or urethra. On the other hand, if the urine is bloody throughout, it may or may not mean that the source of it is in the kidney. In either case, with or without other symptoms as guiding factors, one can only guess as to the source and cause of the blood. One man's guess is as good as another's. Only a careful and thorough examination by cystoscope and X-ray will reveal the facts. The most favorable moment for such an examination is during the attack of hematuria, for then, especially if the disease is in the kidney, one can see a bloody jet issuing from the orifice of the ureter. Having determined the source, the search for the cause of the bleeding may be taken up at a later time if it seems wiser. Cases of microscopic or very slight hematuria, as well as those examined after the bleeding has stopped, present a difficult problem. The normal condition of prostate and bladder indicates that the blood comes from the kidney, but from which? The jet of urine from the ureter may be so nearly clear that one cannot tell by simple inspection and if catheters are passed up the ureters, there will be enough trauma to produce a little blood in the urine from each kidney. Furthermore, the pathological process in the kidney may be so early or so situated that neither pyelography nor a divided renal function will show an appreciable differ-

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†For record and address of author see "This Week's Issue," page 293.

ence between the two sides. It is a difficult situation but one which must be coped with. Otherwise the only alternative is to await the development of definite symptoms, at which time it may be too late to do anything which offers a chance of cure.

In the case of microscopic or very slight renal hematuria I sometimes have determined which kidney the blood came from by using a ureter catheter 1 cm. from the bladder end of which is a bulb of size 10 or 12 French scale. This bulb is pressed firmly against the ureteric orifice while the centimeter of catheter in the ureter collects urine with little or no trauma and hence no blood.

Pain in malignancy of the urinary tract is often conspicuous by its absence. Neoplasms of the kidney can go on for years without any pain whatsoever. If and when pain occurs, it is generally in the form of renal colic. This is due not to the presence of a new growth in the kidney but to the blocking of the pelvic outlet of the kidney by clots or pieces of tumor tissue. Like the renal colic from other causes, it is comparatively short-lived; it may be severe but ceases with the passage of the obstructing mass. Often it comes on during sleep; in other words, it is less dependent for its onset on physical activity, as in the case of the colic due to a calculus. Dull, dragging pain in the epigastrium or back is sometimes seen with neoplasms of the kidney, generally in those of long standing, large size and with extension outside of the renal capsule.

Pain is an infrequent symptom of bladder tumors. If present it occurs generally during or just after urination and is usually indicative of an advanced stage of the disease, when the growth is necrotic and the bladder badly infected. In addition to the pain attending urination the patient may complain of pain in the loin. This is due to renal distension resulting from obstruction of the ureter by the extension of the growth. It is usually unilateral. Owing to the interference with the drainage of the kidney, this organ becomes infected so that the symptoms may be those of renal infection from any cause.

Malignant disease of the prostate is similarly unproductive of pain, except perhaps during urination, unless and until metastases from it involve nerve trunks of the sacral plexus or spinal nerves. Prostatic cancer metastasizes early and often, in fact about one-third of the cases show bony metastases at the time of their first visit to the doctor. Because of this, and because there may be few or even no urinary symptoms at all, the physician can easily be misled as to the actual state of affairs. Many patients with cancer of the prostate have been vigorously treated for a long time for sciatica, lumbago, arthritis and other conditions before the true cause of it was determined by the simple procedure of making a rectal examination.

The presence of a tumor, in the ordinary sense, is extremely important in neoplasm of the kidney. It may be the earliest as well as the only symptom noted and it may have been observed by the patient himself before he consulted his physician. The presence of a tumor is noted in from 33% to 75% of cases by various writers. It may vary from the size of an apple to one which fills the flank. As Smith says, "It is to be hoped that the annual examination of individuals, particularly of those past 40, will detect some of these cases earlier than they would otherwise be detected. Every case of enlarged kidney should be regarded as suspicious, whether or not it is accompanied by hematuria, and should be pyelographed, for it is possible to have an advanced hypernephroma (or other renal tumor —J. D. B.) without hematuria or pain."

Another symptom of neoplastic growth of the kidney which may first attract the patient's attention, only, however, if the patient be a male, and only in the event of the left kidney being involved, is left-sided varicocele of comparatively rapid development. The appearance of this phenomenon, at a time of life when varicocele is uncommon and when neoplasms are likely to occur should at once give the physician a clue to the diagnosis. The cause of this varicocele is to be found in the obstruction to the left renal vein by pressure or ingrowing tumor mass with consequent interference with the blood stream of the spermatic vein which empties into it. Similar results do not occur on the right side owing to the fact that the spermatic vein empties into the vena cava below the renal vein.

Very rarely does one find a mass in a case of bladder neoplasm. In those infrequent tumors of the bladder which arise in its dome a mass may be felt in the region of the symphysis, but only in the later stages of the disease, at a time when other symptoms would make the diagnosis reasonably clear. Growths of the bladder are, generally speaking, situated near the ureteric orifices. Yet unless they are of large size or have extended outside the bladder wall, one rarely detects them by rectal or vaginal examination.

The size of the prostate is no indication of the nature of its pathology. I have several times found a prostate perfectly normal in size but unduly hard or nodular. Subsequent events proved that this was cancer. On the other hand, I have also found an enormously enlarged prostate of stony consistency which was also cancerous. In both circumstances there has often been but little and sometimes no disturbance of urination, rectal examination being done merely as part of a routine physical examination, or because of pain or edema of the leg. I wish to make it very emphatic that cancer of the prostate is one of the most insidious conditions with which we have to deal. Statistics from various sources show that it is found in from 15% upward of all patients with prostatic obstruction. In a series of nearly 500 cases which I studied

some years ago cancer was found in about 23%. In other words one out of every 4 or 5 men with prostatic obstruction has cancer. This appalling figure, together with the absence or mild character of urinary symptoms, the frequency and early occurrence of metastases and the knowledge that no hope of a cure can be entertained unless the disease is caught almost at its beginning should make us constantly on the alert to detect this terrible disease.

Cachexia, loss of weight and anorexia, are, of course, among the usual earmarks of malignancy in any portion of the body. In the case of the urinary tract, as elsewhere, these symptoms are evidences of an advanced stage of the disease. Yet it is often that one finds a patient in apparently good condition with an enormous and adherent renal tumor, a fixed and stony hard prostate, or an inoperable bladder tumor, all of obviously long standing. It apparently comes down to a question of the degree of toxicity of the growth, the resistance of the individual to this toxin and the occurrence and extent of metastases.

The first symptoms of malignant disease of the urinary tract are not infrequently those of the metastases to which it gives rise. Hypernephroma of the kidney may be entirely silent, but the patient will seek relief for a metastatic tumor of the skull, the orbit, or of some long bone like the clavicle or sternum. He may seek relief for edema of one leg, for sciatic pain, or for hemoptysis and dyspnoea and rectal examination will show malignant disease of the prostate. In other words, the first and only symptom may be what is usually classed as a late symptom. My title of "early diagnosis of malignant disease of the urinary tract" is therefore, more or less of a misnomer. Early diagnosis is impossible in many cases, I might almost say in most cases, for the reasons already cited—namely, absence of symptoms, disregard of symptoms such as hematuria, sciatic pain or edema, and our inability to detect malignant disease in its initial stages when it occurs in the kidney or prostate. As a sort of postscript to the subject of hematuria which I discussed early in the paper I might say that except for blood no pathological elements may be found in the urine either for a long time or at any time. Between attacks of hematuria, whether of kidney or bladder origin, the urine may be entirely normal, although in the case of a bladder tumor infection and pyuria will generally be found sooner or later. In cancer of the prostate also a negative urinary sediment is not infrequent and it may so remain until instrumentation or the accumulation of residual urine brings about infection. It has been my experience, however, that taken as a whole the urine is much cleaner in the presence of cancer than of adenoma of the prostate.

SUMMARY

As a means of emphasizing and summarizing what has been said and at the risk of repetition I would like to state:—

(1) A complete physical examination should be done at least once a year on every individual, male or female, especially after the fortieth year. This should include among other things rectal or vaginal examination, a study of the urinary sediment and roentgenograms of the chest and abdomen. If pathological elements, especially blood, are found in the urine and if these persist for any length of time, a cystoscopy should be done to determine their source. This suggestion is doubtless impractical for one reason or another, but it does not seem to be too great a burden for the individual to bear when by it his life might be saved or prolonged.

(2) Hematuria is by far the commonest symptom and often the earliest symptom of malignant disease of the urinary tract. It may be microscopic or macroscopic. It may not reappear for weeks or months. It cannot be influenced by medication. It is often disregarded or made light of. Its source and cause should be searched for without delay.

(3) Pain is not an outstanding feature of the subject under discussion. It occurs generally at a late stage in the disease, and is frequently experienced at a point remote from the organ primarily involved, as a result of metastases.

(4) Metastases from malignant disease of the prostate occur early and often, from the kidney less early and less often, and from the bladder late and seldom.

(5) Except in neoplasms of the kidney, the diagnosis can rarely be made by finding a tumor.

(6) Cancer attacks the prostate in about one-fifth of all cases of prostatic obstruction. It may give rise to no urinary symptoms whatever.

(7) Early diagnosis of malignant disease of the urinary tract is made with disappointing infrequency. This is often due to the fact that it causes no demonstrable symptoms until the disease is well advanced. It has, therefore been necessary to speak of late symptoms as early symptoms in the sense that they were the first to appear.

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 14251

JAUNDICE AND ASCITES

MEDICAL DEPARTMENT

First admission. An unmarried Irish housemaid twenty-three years old entered the hospital for the first time thirteen years before her second admission.

After having seven teeth extracted under cocaine she had left hemiplegia. She had never seen anyone with paralysis. She gave a history of mild frontal headaches "always". Her urine at that time showed urobilinogen. After five days the disorders in sensation and motion had decreased but had not entirely disappeared. She was discharged with a diagnosis of hysteria, hysterical hemiplegia and hysterical anesthesia.

Second admission. September 23, thirteen years later, she reëntered complaining of pain in the stomach.

For six years she had had attacks of midepigastric pain about once a month coming on one or two hours after eating and immediately relieved by soda and hot water. During the past two weeks she had had five or six attacks and in addition a constant burning, gnawing pain that became severe after meals and at three or four a.m. and was partially relieved by soda. There was a sensation of distention after eating. Two weeks before admission she noticed "pitch black" stools two or three times.

Her mother had gastric ulcer.

The patient had been married for eight years. She had not been pregnant. Her headaches had become rare. She was inclined to worry.

Clinical examination showed a very slightly undernourished woman. The right upper chest above the angle of the scapula showed increased tactile fremitus, voice sound, breath sound and whisper. Otherwise the lungs were negative. Moderate epigastric tenderness. No masses or spasm. Very small varices in the legs and thighs. Leukorrheal discharge. Left vault slightly tender to firm palpation. No definite mass.

Urine not remarkable. Renal function 50 per cent. Blood: 7,200 to 10,200 leukocytes, polymorphonuclears 76 per cent., hemoglobin 60 to 70 per cent., reds 4,760,000 to 5,730,000, very slight achromia. Wassermann negative. Fasting contents of stomach: 30 cubic centimeters of bile stained material with mucus; no free hydrochloric acid, combined acid 25; test meal colorless, with mucus; free hydrochloric acid 50, combined acid 45.

X-ray showed the stomach in the median position, outline normal. There was a small area in the pyloric end of the stomach which did not fill out readily. Peristalsis was seen traversing this area. A second examination showed no evidence of pathology in the stomach or duodenum. At this time the pyloric end of the stomach filled out readily. A third examination confirmed the second. An examination with a barium enema showed no defects. A Graham test showed nothing abnormal.

Chart not remarkable.

On a gastric régime the patient became symptom free in five days. October 17 she was discharged with reassurance and orders for diet and rest.

History of interval. After leaving the hospital she continued in what she called perfect condition for a year except for an occasional mild attack of indigestion. The first of October these attacks began to be more frequent and severe. The pain was more burning, did not radiate as before and was now constant and not related to meals. It woke her at night. About October 15 her face and eyes became yellow. For the first three days when she had jaundice she had a temperature of 100° with night sweats. She was very weak. By advice of a doctor she stayed in bed two weeks, and since that time had been up only a few hours each day. Her stools were white and on three occasions contained streaks of blood. Her urine was reddish-black. Since the onset of the jaundice her bowels had required much magnesium sulphate. The jaundice lasted two weeks and disappeared gradually. She had not menstruated since the 10th of October, and had had leukorrhea. Five weeks before admission her ankles were swollen at night and a few days later her knees. This edema would be gone in the morning. On Thanksgiving Day her abdomen was swollen. This condition had gradually become worse, until now the abdomen felt very tight and bloated. For two weeks she had been short of breath on exertion. She had taken no medicine except magnesium citrate and during the past three weeks a "tonic", not Weldona.

Third admission, December 17, fourteen months after her discharge.

Clinical examination showed a fairly well nourished woman with dry skin and subicteroid appearance. The skin of the flanks, legs and upper thighs showed a reddish slightly scaly excoriated eczematous appearance. The skin of the abdomen and chest showed flecks of residual dermatitis which appeared more extensive lower down. Sclerae slightly icteric. Lungs clear except for coarse loud breath sounds and coarse bronchovesicular breathing throughout. Diaphragm high on the right. Abdomen symmetric-

ally enlarged, especially in the flanks. No visible peristalsis. Abdominal wall thick and rubbery. Abdomen tympanitic at the dome and flat in the flanks, with shifting dullness and fluid wave. No masses. Slight pitting edema of the lower abdominal wall and marked pitting edema in the lumbar region. Pelvic examination: vaults low and tender to pressure. Fluid wave felt through the vaults. Moderate pitting edema of both legs, decreasing to the upper shins. Pupils and reflexes normal.

Amount of urine normal, specific gravity 1.010 to 1.030, below 1.015 at only 4 of 24 examinations, the slightest possible trace to a trace of albumin at 6, sugar at 2, bile at 8, questionable at a ninth, in large quantities at 4, diacetic acid questionable once. Sediment of two catheter specimens showed 1 to 10 leukocytes and 0 to 4 red cells; one showed occasional finely granular casts. Culture of one, December 25, showed no growth; the other, February 5, showed staphylococcus albus. Sediment of all the other 22 specimens showed 2 to 60 leukocytes per field: 4 specimens were loaded with leukocytes; 14 showed red cells, 3 showed granular casts. Blood: 4,750 to 11,500 leukocytes, polymorphonuclears 77 per cent., hemoglobin 70 to 60 per cent., reds 5,550,000 to 3,100,000. Smear normal. Icteric index at admission 10. Renal function 50 per cent. February 3. Rosenthal bromsulphthalein liver function test: December 19 retention after 30 minutes 20 per cent., January 10 40 per cent. Vomitus: guaiac slightly positive in one of five specimens. Bleeding time a minute and a half. December 19 clotting time 9 to 45 minutes, January 30 9 to 15 minutes. Van den Bergh test December 19 positive delayed direct reaction, positive indirect reaction; December 28 direct and indirect tests positive. Wassermann negative. Stool clay colored at one of 11 tests, bile at 6.

X-ray examination showed no evidence of calcified mesenteric glands. There was homogeneous dullness occupying the soft tissue region of the abdomen. The left kidney appeared normal. The right was indistinct. There were no visible stones. Both diaphragms were unusually high. The right costophrenic angle was shallow. The lung fields and apices were essentially clear. The apparent dullness of both lung fields was thought possibly due to incomplete aeration. At a Graham test the gall-bladder was not visible. There was diffuse homogeneous dullness over the area taken. The soft tissue shadows and ribs were indistinct. "The findings are consistent with gall-bladder disease." A gastro-intestinal series was negative.

Temperature not remarkable except for one period of elevation December 22 to 27, reaching 102.4° December 24, and a rise to 102.8° the day before death. Pulse 78 to 120. Respirations normal except for a terminal increase to 30.

December 21 the abdomen was tapped and 1,700 cubic centimeters of clear straw colored fluid withdrawn, specific gravity 1,007, 10,000 red cells, 450 white cells, 54 per cent. small lymphocytes, 10 per cent. polymorphonuclears, 36 per cent. large mononuclears containing much cytoplasm, questionable epithelial cells. Culture, no growth. No acid-fast bacilli. A guinea pig was inoculated. Necropsy later showed no tuberculosis. Examination of the abdomen immediately after the tap showed no palpable organs or masses. There was still considerable fluid, and relaxation was not good. She had steady dull epigastric ache. December 25 she retained orange juice and honey. The following day however she was not able to take all her feedings and vomited twice. The abdomen was again distended with fluid. The jaundice was clearing somewhat. She was very weak and was nauseated whenever she took anything by mouth. A surgical consultant advised against operation at this time. December 27 another paracentesis gave 1,300 cubic centimeters of fluid similar to the last. The wound drained considerably until January 5. Following the tap examination showed flatness from the fourth to the sixth right interspace, very low-pitched tympany from the sixth space to the costal margin. The jaundice continued to clear slightly. The icteric index fell from 100 on December 23 to 40 on the 27th. Gruel and hot sweet drinks were added to her diet. These she took fairly well, though she still had much nausea and epigastric discomfort. December 29 the surgical consultant advised operation. January 3 she felt definitely better. The icteric index was down to 25. There was much less gastric distress. She was put on a diet high in carbohydrate and low in salts, with limited fluids and 6 grains of ammonium chloride daily in an endeavor to keep down the ascites. January 11 a Rosenthal liver function test showed 40 per cent. retention as compared with 20 per cent. at admission. January 13 she was vomiting, it was believed from the ammonium chloride, which was stopped. The vomiting however continued. January 14 another abdominal tap gave 2,900 cubic centimeters of clear light yellow fluid. Culture showed staphylococcus aureus. January 17 she was put on ammonium nitrate and January 18 on novasurol. By January 21 there was no diuresis. January 30 the icteric index was 15. Up to January 31 she just about held her own. Between January 29 and February 2 she lost four pounds. The abdomen became less tense and she felt better. The basal metabolic rate was -3, pulse 90, weight 52.7 kilograms.

The night of February 10 with the rise in temperature to 102.8° she had some pain in the right side of the chest. The following day the lungs showed bronchopneumonia, more at the left base than the right. There was an erythematous rash on the legs. Following another paracentesis shortly after midnight the patient died.

Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

I suppose cerebral embolism from a thrombus is about the only thing we can think of in a person at that age following such an operation.

They mention that she had never seen anyone with paralysis because they think that there is a possibility of hysteria. If it is true that she never saw a case of paralysis I do not believe that diagnosis. I do not believe that anybody out of a clear sky would think of any kind of organic paralysis. The difficulty with the diagnosis of hemiplegia is the reflexes. The tendon reflexes were lively and equal on the two sides. That is very queer for any kind of organic paralysis. There was some difficulty in talking. I have never seen hysterical hemiplegia in a case like this except in a person who has seen such cases. I believe it was a cerebral embolism. I know of a similar but fatal case after the pulling of a tooth.

I do not know of any heredity in such a disease as she has at the second admission.

I suppose at the second discharge they made a diagnosis of pyloric spasm.

The reason that remark about Weldona is put in there is that a few years ago we had a series of cases like this which we wondered about a good deal,—cases of subacute yellow atrophy with fatal results in which the patients had taken this remedy. So far as we could find out there is nothing in it which could cause death. I think the preparation had nothing to do with it.

NOTES ON THE PHYSICAL EXAMINATION

Breathing changes throughout both lungs is not an abnormality.

Jaundice and ascites are the facts at the third and present entry.

I should say that this was a normal urine with some irritation from bile.

5,000,000 to 3,000,000 reds is very important. Evidently she had a rapidly progressing anemia.

An icteric index of 10 is very low.

Dr. Richard Dresser: I am not sure that we have all that we should like to have in the way of radiological interpretation. At the first examination in September the gall-bladder was reported as functioning normally. In December, three months later, we have a report that the findings were consistent with gall-bladder disease. I think the man who made the second report was a little bit rash in his conclusions. He was not quite justified in concluding that the gall-bladder was diseased. Now that we know the history we can account for the fact that the gall-bladder failed to fill promptly by extensive disease of the liver.

Dr. Cabot: On the whole the examination was negative?

Dr. Dresser: The evidence is against gall-bladder disease.

Dr. Cabot: I do not believe one ever gets tuberculosis with such a low gravity fluid. They might have saved that pig.

Always take the opportunity immediately after the tap to see if you can feel something which later you will not be able to feel so well.

There is no first rate evidence of gall-bladder disease and nothing else to operate on.

If that note of tympany from the sixth space is true what should we consider? That is very important evidence if true. If they found it every day, once or twice a day, what does it indicate?

A Student: Was the liver small?

Dr. Cabot: That is a very difficult thing to be sure of. It rests on percussion, so one does percuss again and again. It is very much more important in this than in the case of heart disease. We are thinking of a disease which will diminish the size of the liver, and this liver seems to be diminished.

DIFFERENTIAL DIAGNOSIS

The outstanding fact is fatal icteric ascites. I do not see that we have anything else in any other part of the body that ought to give us serious thought. Whatever she had in her brain in the early history of embolism, there is nothing left of that now. The stomach symptoms have cleared up. We are dealing apparently with pure liver disease. We ought to consider malignant disease, cirrhosis of the liver, subacute toxic hepatitis. We have no reason to consider the heart or the kidneys as causes of ascites. We have no evidence of tuberculosis, of peritonitis or of ovarian growth. Putting those things out of the way we are left with malignant disease, cirrhosis and toxic hepatitis, which we used to call yellow atrophy, as the chief possibilities here.

As to malignant disease at her age, under forty still, it is rare. We have no good evidence as to where if anywhere it is. When malignant disease is associated with jaundice the jaundice usually does not come so near clearing up as it does here. It has never been very intense apparently. Nothing was felt in the abdomen, although they have had a number of good chances. Malignant disease causing jaundice ordinarily goes with a big liver. I do not think I have ever seen or heard of a case of malignant disease as a cause of jaundice either in the liver itself or in or outside the ducts so as to compress them—that is in the pancreas chiefly—without hepatic enlargement. All of these types of malignant disease causing jaundice go with a big liver. They had plenty of chances to find it big and never did. We have some fair evidence that it was small. So that the chances of malignant disease in this case are not good.

We are left with cirrhosis, ordinarily called alcoholic, and subacute toxic hepatitis. There is

no alcoholic history. That does not rule out cirrhosis. There was no enlargement of the spleen. That does not rule cirrhosis out either. We have more jaundice than we usually have with alcoholic cirrhosis. We have a type of gastro-intestinal trouble that might perfectly well go with alcoholic cirrhosis but is not in any way peculiar to it. She once had some black stools, but I am very skeptical of any report of black stools not seen by a doctor or a nurse. People's reports of the color of stools are notoriously inexact. If we were sure that was so we should place some weight on it, inclining us towards a diagnosis of alcoholic cirrhosis; although blood usually goes up as well as down when it is associated with that disease, i. e., when there are varicosities of the esophagus, which are a great cause of hemorrhage. She has anemia, which goes with either of the two diseases we are now considering. The diminished liver function is good evidence, and will go with either. I think that is all the evidence that I can see one way or the other. On the whole it points towards toxic hepatitis, though not very clearly.

Have we left anything out? There are some cases of cirrhosis of the liver in which neoplasm on top of cirrhosis is found at the end. I do not know how it can be recognized in life.

A STUDENT: What about infectious cirrhosis?

DR. CABOT: I am always in difficulty about questions like that because I have seen so few cases. In the first place we ought to have evidence of an infection. In the second place the liver is enlarged, not diminished, and the degree of jaundice is usually slight. I think that can be ruled out.

A STUDENT: Doesn't the diminished liver function mean yellow atrophy?

DR. CABOT: No; one gets that in any kind of severe liver disease, certainly in alcoholic cirrhosis.

A STUDENT: Supposing it were acute yellow atrophy, would fluoroscopic examination of the liver and the diaphragm give us any help?

DR. DRESSER: Not that I know. The liver is often very difficult to make out. Sometimes we can see it, but often we do not see it.

DR. CABOT: Were you thinking of the lower border?

DR. DRESSER: Yes.

A STUDENT: I was thinking perhaps the diaphragm ought to be lower.

DR. CABOT: Did the diaphragm come down in this case?

DR. TRACY B. MALLORY: I think not.

A STUDENT: Might both processes be present?

DR. CABOT: It is simpler not to say so.

A STUDENT: How do you account for her having paralysis on the left side and yet having aphasia?

DR. CABOT: She may have been left handed. Left handedness and open foramen ovale are very convenient openings for crawling out of a difficult place. An open foramen ovale lets all sorts of emboli through.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Cirrhosis of liver.
Acute yellow atrophy of liver.
Bronchopneumonia.

DR. RICHARD C. CABOT'S DIAGNOSIS

Subacute toxic hepatitis.

ANATOMIC DIAGNOSES

Toxic cirrhosis of liver (acute).
Toxic necrosis of Malpighian corpuscles.
Toxic necrosis of lymphoid germinal centers.
Ascites.
Arteriosclerosis.
Subacute peritonitis, bacillus coli.

DR. MALLORY: I have brought over the liver in this case, which you can see from your seats was very small. It weighed slightly under 800 grams. The surface is very coarsely granular. You notice that these nodules are from half a centimeter to something over a centimeter in diameter. That is in marked contrast to the alcoholic type of atrophic cirrhosis, in which the nodules are one, two, three or more millimeters in diameter. On the cut surface these nodules, which stand out prominently, are a bright green, or in some places yellow, and in between them is a somewhat dense fibrous reddish tissue which represents the areas in which all the liver cells have died or disappeared. The fibrous tissue and bile ducts have shrunken together. The case is, of course, one of toxic hepatitis or acute yellow atrophy, rather longer in duration than the classic case, so that now we have a well developed cirrhosis.

The case is interesting I think in that there was a period of two weeks when the patient showed quite marked improvement. She then, just at the end, although the record does not point that out very clearly, showed some evidence of infection and her liver condition suddenly again became much worse. The infection was a low grade general peritonitis, probably secondary to the tapping, and that probably induced fresh liver damage.

The operation considered in the case was splenectomy. We have had two or three cases in the hospital during the past year, not so acute as this, in which following splenectomy ascites, which previously had recurred two or three times, has disappeared and the patients have been well for intervals of six months to a year. In one of these cases the patient came in a year afterwards with a story of sore throat. They did a bromsulphalein retention test and an icteric index and found that it had gone up considerably from the level which she showed during convalescence. With the subsidence of the sore throat the icteric index and dye retention

came down again to practically normal figures. This type of case shows very clearly the development of the big group of atrophic cirrhoses which are not due to alcohol, but owing to some toxemia which may be chemical or may be bacterial in origin a large number of liver cells are killed. Fibrosis occurs along with regeneration of the liver cells. The patients often return to health for many years. However, with recurrent focal infection it is quite possible for the process to light up again. Dr. Joseph Pratt* has recently reviewed a series of cases in which various degrees of yellow atrophy have recurred in the same patient. These have eventually come to necropsy and have had well marked toxic cirrhosis.

DR. CABOT: I think this is one of the most interesting diseases we have, to me especially so because of our recent enlargement of the clinical picture. Twenty years ago we knew acute yellow atrophy as going straight on to death after a very short period. Now we begin to hear about subacute cases and some chronic cases. We realize more and more the commonness of development of ascites. There seems to me every reason to believe that just as in the cases of liver damage which occur in the treatment of syphilis with arsenic we have all degrees of damage, from those that get well easily to those that die, so in this disease, toxic hepatitis, which we have been used to thinking of as an acute fatal disease, we sometimes have subacute and chronic cases, although we know less about those. I do not believe there is anything at all impossible about cases getting well.

I am interested in the verification of the narrowed percussion dullness over the liver. It is the most important fact in this case to back up the diagnosis.

A STUDENT: Was anything found in the pelvis?

DR. MALLORY: No.

DR. CABOT: Tenderness was all they spoke of.

DR. MALLORY: The peritonitis was slightly more intense in the pelvis than elsewhere. That is the rule where the process is not extreme. The leukocytes tend to settle with gravity.

A STUDENT: Was any organism isolated?

DR. MALLORY: Bacillus coli.

CASE 14252

MONOPLEGIA AND STUPOR AT NINETEEN

NEUROLOGICAL DEPARTMENT

An American girl of nineteen entered the Emergency Ward in a semistuporous condition. The history was obtained from her father.

Up to three weeks before admission she had been perfectly well. She had had measles and pertussis as a child, and sore throats occasionally up to two years ago, when her tonsils and adenoids were removed. She had had no other infectious diseases, and there had been no exposure to tuberculosis. Her mother had died of cancer years ago, but otherwise the family history was negative. She had had no colds prior to admission, no local infections, and had never suffered from otitis media.

Three weeks prior to admission she developed a headache which continued to bother her, although she did not complain much. At times the headache was severe. Otherwise she felt well. One week prior to admission, when at a social function, she suddenly became disoriented, began to push people away, and then fell to the ground unconscious. Those who saw her said that she did not have any tonic or clonic convulsive movements. When she was being taken home it was noticed that her right face and right arm were paralyzed. She vomited a little once. A local doctor gave her some medicine and predicted that she would be well in the morning. She was clear mentally in the morning, but her arm and face were still somewhat paralyzed and her articulation was not distinct. She began to run a fever which persisted up to admission. Her arm and face would be better on some days and worse on others.

When first seen in the hospital she could not be roused. Her pupils were equal and dilated, but reacted to light. Her face was drawn slightly to the left. The tendon reflexes of the right arm were perhaps more active than those of the left. The knee-jerks and ankle jerks were active and equal. The plantar response was not definitely abnormal on either side, and the Kernig test was negative. A few hours later the patient was fairly clear mentally. Her articulation was slurred and indistinct. She answered questions but could not carry out simple commands. When asked to open her eyes she would open her mouth. By simple tests no visual or motor aphasia was found to be present.

Examination of the right fundus oculi showed nothing abnormal, but on the left the vessels were dilated and the disc margins were obscured, particularly on the nasal margin. There was no paralysis of the ocular muscles, no nystagmus, and as far as could be determined no visual field defect. There was a definite palsy of the right face of the central type. The tongue protruded to the right, and on repeated examination the jaw deviated to the left when it was opened. The left masseter contracted well, however. There was possibly slightly diminished sensation over the right face and over the right arm. The right arm and hand were almost completely paralyzed. There was no impairment of the sense of position, and the finger to nose test on the left and the heel to knee test on each side were well executed. Her neck was not stiff.

Her temperature was 102°; pulse 100; respiration 20. The white count was 5,000.

A lumbar puncture at this time showed an

*Joseph H. Pratt and Alfred Stengel—Toxic cirrhosis resulting from acute liver atrophy. Am. Jour. Med. Sci. January, 1927, Vol. 173, page 1.

initial pressure of 450 millimeters of water. There was no evidence of block. The fluid was colorless but not absolutely clear. There were 208 cells per cubic millimeter, of which 84 per cent. were lymphocytes and 16 per cent. polymorphonuclear leukocytes. The alcohol and globulin tests were increased. The total protein was 64 milligrams per 100 cubic centimeters; the sugar 68. The chlorides were 708 milligrams per 100 cubic centimeters.

Discussion

BY G. COLKET CANER, M.D.

If the case is considered at this time it presents an interesting problem in diagnosis. The onset of loss of consciousness and paralysis was so sudden that it strongly suggests a cerebral vascular disturbance of some sort. The fact that the patient had been suffering with headache for two weeks previously suggests that the intracranial pressure may have been increased at that time, and in putting these two facts together one is disposed to think that there may have been a hemorrhage into a tumor. The fever, leukocytosis, and the cells in the spinal fluid suggest the presence of a brain abscess.

The spinal fluid picture is consistent with a meningismus secondary to a brain abscess, except that one would expect a larger proportion of polymorphonuclear cells.

The spinal fluid is consistent with epidemic encephalitis except that the pressure is higher than is found in encephalitis. The onset of the paralysis was also more acute than one would expect in encephalitis. One may get a monoplegia or hemiplegia in encephalitis, but it is not an initial symptom. The papilledema is likewise against this diagnosis.

This spinal fluid picture might be found in a very early tuberculous meningitis, but there is little else to support this diagnosis. The sudden onset with paralysis of face, tongue and arm would be very unusual.

It seems that the most likely diagnosis that can be made on the findings obtained on entrance to the hospital is that of brain abscess. We have yet, however, to find a lesion to which the abscess might be secondary, and we cannot explain the weakness of the right face and arm and left jaw on the basis of a single abscess.

Further History

For a few days following admission the patient seemed better. Her headache had been relieved by the lumbar puncture. The paralysis of the right arm seemed less marked and at times the jaw did not deviate to the left. An ear consultant found nothing abnormal in the ears. The breath sounds over the right chest were diminished, but otherwise the examination was negative. X-rays of the skull and sinuses showed nothing abnormal. The temperature ranged between 102° and 99° and the pulse between 90 and 100. Respirations did not vary from 20. The signs of papilledema in the left fundus diminished. The clinical picture continued about the same for ten days. At times she was drowsy and complained of headache. Ten days after admission she developed paralysis of the right and later of both external rectus muscles. She became semicomatose; her neck was stiff; and a bilateral Kernig reaction was present. Fifteen days following admission her temperature, pulse, and respirations went up, and she died in coma.

SPINAL AND CISTERN FLUIDS

		Initial pressure	Cells			Total protein	Sugar	Chlorides	Goldsol
			Total	Per cent. poly.	Per cent. lymph.				
May 1	Spinal	450	208	16	84	64	68	708	0111000000
May 2	Spinal	300	198	20	80	69	--	---	0112211000
May 8	Spinal	160	308	5	90	105	37	661	0011221100
May 11	Cistern	325	458	10	88	103	44	644	0011221000
May 16	Cistern	330	197	12	88	93	41	652	0001221000

Hydrodynamics normal throughout.
No tubercle bacilli found.

Further Discussion

Repeated spinal fluid examinations were done by lumbar and cistern routes, and some features of these have been tabulated. The Wassermann test was repeatedly negative; the hydrodynamics were normal; no growth was ever obtained by culture; and no tubercle or other organisms were found on examination of smear. As the disease progressed the spinal fluid chlorides and sugar became decidedly diminished, whereas the protein was high. The cells were moderate in num-

ber and were mostly lymphocytes. On the last two examinations the fluid was yellow, and a pellicle formed on standing. This picture is characteristic of tuberculous meningitis. As the process advanced spinal fluid examination established a diagnosis which was far from clear when the patient was first seen. The onset was unusual for tuberculous meningitis.

CLINICAL DIAGNOSIS

Tuberculous meningitis.

ANATOMIC DIAGNOSES

Tuberculous meningitis.
Internal hydrocephalus.

DR. CHARLES S. KUBIK: The post-mortem examination was restricted to the head.

GROSS ANATOMICAL FINDINGS

There was moderate injection of the vessels of the pia-arachnoid overlying the cerebral hemispheres and to a slighter degree the cerebellum. The convolutions were definitely flattened and a small "pressure cone" of the cerebellum was present. The pia-arachnoid at the base of the brain, particularly in the region of the optic chiasm, was cloudy, more opaque than normal, and a little thickened. Along the left Sylvian fissure and extending to the left Rolandic area there was a thick greyish-white exudate arranged in patches or nodules along the vessels of the sulci, with miliary tubercles on the convex surfaces of the convolutions. A similar though less extensive exudate involved the anterior part of the right Sylvian area, and there were miliary tubercles on the under surfaces of both temporal lobes anteriorly. On cutting the brain the lateral ventricles were found to be dilated to about one and a half times the normal size.

No areas of softening or caseation were found in any part of the brain, brain stem or medulla. The appearance of the cranial nerves, including the fifth pair, was normal. Except for the cloudiness and slight thickening of the pia-arachnoids, which was equally marked on both sides, nothing was found to account for symptoms of trigeminal weakness.

HISTOLOGICAL EXAMINATION

In the subarachnoid space of the cerebral hemispheres, cerebellum and brain stem there was an exudate of lymphocytes and endothelial cells, while along the left Sylvian fissure there were miliary tubercles, which in places invaded the grey matter of the cortex. In a section through the left caudate and lenticular nuclei, the optic thalamus and the internal capsule there was lymphocytic infiltration of the perivascular spaces and in places, particularly just under the ependyma, infiltration of the brain tissue.

The choroid plexus also contained collections of lymphocytes and endothelial cells, but tubercles were not seen.

DISCUSSION

An extensive exudate with miliary tubercles such as was present in the left Sylvian area is not a common finding in tuberculous meningitis. In many, perhaps in the majority of cases no tubercles are to be seen on gross examination and none may be found histologically; there is only an exudate of lymphocytes, plasma cells and endothelial cells in the subarachnoid space, sometimes with an occasional tubercle, although often enough without any. Tubercles, when present, are most likely to be found in the region of the optic chiasm and along the anterior part of the Sylvian fissure where it separates the under surface of the frontal from the tip of the temporal lobe.

A perivascular infiltration as marked as this case exhibited is not common, although slight infiltration just under the ependyma, particularly near the attachment of the choroid plexus, has been observed.

It is the rule to find, as in this case, involvement of the choroid plexus, sometimes with tubercle formation, and it is possible that the lesion there serves as a portal of entry for the tubercle bacilli, by way of the cerebrospinal fluid, into the subarachnoid space.

In a case recently examined the ependyma of the lateral, third and fourth ventricles was thickly dotted with miliary tubercles.

In most of our cases, as in this one, there have been evidences of increased intracranial pressure in the form of flattened convolutions, "pressure cone" of the cerebellum and increase in the size of the ventricles, without obstruction of the ventricular system above the level of the fourth ventricle. Whether or not there was occlusion of the foramina of Magendie and Luschka could not be determined, but in view of the fact that the pia-arachnoid in their vicinity is always affected it is possible that a more or less complete block occurs at that point. Delayed absorption or filtration of the fluid as a result of disturbed function of the arachnoid villi might have to be considered.

The case before us exhibited a clinical manifestation which, though it is not unknown, is infrequently seen in tuberculous meningitis, that is, the development of a monoplegia. One would hesitate to explain it by the exudate which involved the surface of the left Sylvian and Rolandic areas. Microscopic examination however discloses pathology, perivascular and parenchymatous infiltration in the vicinity of the left internal capsule, corresponding to the paralytic (right) side. It is conceivable that this is adequate to account for the monoplegia.

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THYROID CRISES AND THE OPERATIVE TREATMENT OF EXOPHTHALMIC GOITER

It is somewhat surprising that in modern days when the operation for exophthalmic goiter has been so perfected as to carry with it but a slight danger to life, when the pre-operative treatment, perfected methods of anesthesia, etc., have made the procedure so safe, that a considerable number of patients are allowed to progress to a stage where the presence of a thyroid crisis may make operation so extremely dangerous as to be unwise or impossible.

The answer to this condition must be, as suggested by Dr. Lahey in this issue, the unfamiliarity with thyroid disease of many practitioners, and an undue confidence in the so-called palliative methods of treatment. While rest, iodine, protection and supportive therapy have caused the permanent disappearance of the symptoms of hyperthyroidism in a few cases, this fact is no excuse for persistence in such treatment over long periods. Such measures do not cause the symptoms to disappear. Remissions in hyperthyroidism are the rule; recovery is rare.

The iodine treatment, from which so much has been expected, while it will cause a temporary remission, rarely restores the balance of the patient to normal for anything more than a short period of time, and, when the symptoms recur, becomes less effective. The most that can be expected of iodine is to hasten a remission. If this remission is sufficient to make the operation safe, then the operation should be done, without expecting a permanent cure from a palliative measure, and allowing the disease to progress to a more serious form, especially to the dreaded thyroid crisis.

The operation cuts off the supply of thyrotoxin to the circulation, or limits it to the amount required for normal metabolism and balance of the nervous system. When the patient is brought to the hospital with dry skin, delirium, vomiting and diarrhea, rapid pulse, fibrillating heart and high temperature, operative treatment may be out of the question, and in fact the patient is in danger of death if no operation is done. Active treatment by sedatives, fluids, iodine, and glucose, which must be given intravenously if the stomach or rectum cannot retain them, is then in order, and the result even with the most active and intelligent treatment is in doubt. The hyperirritability of the nervous system in these cases is of such importance that sudden fright, bad news, losses, etc., may precipitate a crisis. Infections, even such as produce slight and unimportant effects in normal individuals, may in hyperthyroidism lead to the dreaded crisis and quickly send the patient beyond the reach of surgical help.

Since these things are so, what an argument they make for operation in the remissions, when the surgical procedures are safe, and without waiting for the slow deterioration in the heart muscle and the kidneys, or for the patient to be subjected to more of the emotional stress and strain, sorrow and losses which time brings to all, and which, as has been said above, may bring on the dreaded crises. We all know the importance in operative cases of minimizing the nervous shock of operations by protection of the patient, narcotics, combinations of local and general anesthesia, which lessen the discomfort and alarm of the patient, and how much they have accomplished to make the operation safe. But no operation, no matter how careful and skillful, in the dehydrated, exhausted and delirious patient during a thyroid crisis. And such crises are theoretically avoidable. They will become practically unknown except in those few patients whom poverty, ignorance and prejudice prevent from consulting physicians and when those to whom they entrust the case have sufficient knowledge of the disease, and courage not to persist in half-way measures. For the disease is not acute, but of gradual onset, with remissions and exacerbations, as has been stated before.

The situation in this disease corresponds closely with that in cancer, where active propaganda

has made possible such great advance in the treatment of a condition curable in its early stages, but so often hopeless after metastases have taken place. The change in hyperthyroidism is more sudden and catastrophic, but still there is time for anticipation and prevention. Let the patient and the physician think on these things.

THE EARLY DIAGNOSIS OF MALIGNANT DISEASE OF THE URINARY TRACT

MALIGNANT disease of the urinary tract is, in many cases, one of the most distressing of human ailments. Apart from the pain and cachexia incident to most cases of advanced cancer, there is, especially in cancers of the lower urinary tract, the additional factor of disturbance of urination caused by mechanical obstruction and by sepsis. The surgical management of these cases is made more difficult by the problem of urinary drainage, for this is a function which must go on constantly and cannot be checked for a week or so while the wounds made by the surgeon's knife begin their processes of repair.

There are no problems in surgery which require the exercise of more judgment in deciding which method of treatment will be of the greatest benefit to the patient.

Although the difficulties attendant upon the treatment of malignant disease in the urinary tract are many, they are somewhat offset by the relatively satisfactory methods of arriving at a diagnosis. Tumors of the brain, the stomach, the gall-bladder and the intestinal tract are diagnosed largely on circumstantial evidence, aided by the more or less conclusive testimony of the X-ray, but in the urinary tract the surgeon may, in a very large percentage of cases, be practically certain of his diagnosis before he operates. Distortions of the renal pelvis caused by a tumor may be shown by pyelography; the interior of the bladder is of course made visible by means of the cystoscope; the prostate gland is so placed as regards the rectum that it may be subjected to the most careful palpation. Yet as Barney points out in his paper on "The Early Diagnosis of Malignant Diseases of the Urinary Tract", published on page 281 of this issue, in spite of these favorable factors, cancer of the urinary organs often escapes detection until the disease is far advanced.

There appear to be two reasons for this discrepancy between the possibilities and the actualities of diagnosis. One is, as Barney shows, the fact that often these growths give no symptoms which attract the patient's attention until they are already beyond hope of a radical cure. The other is that early signs are neglected, either by the patient or by his doctor, and thus the opportunity to achieve a real cure is lost. Of these signs, by far the most frequent is hematuria. The advice cannot be repeated too often to investigate hematuria, even when it is only detectable by the microscope. Other signs, according to the location of the growth, as described by Barney, are tumor, pain, the sudden development of a left varicocele; the outstanding sign, however, is hematuria.

With Barney's conclusion that "early diagnosis of malignant disease of the urinary tract is made with disappointing infrequency because often the growth causes no demonstrable symptoms until the disease is well advanced", there may be some grounds for disagreement. The first portion of his syllogism is true beyond a doubt, but the second part is open to question. The reason why early diagnoses are so few is not because demonstrable symptoms do not exist, but because these symptoms are not demonstrated. In other words, if, as Barney says, careful annual examinations were done, and all suspicious signs were investigated, a considerable proportion of these cases would be discovered much earlier, with a greatly augmented chance of being cured.

It is to be hoped that all practitioners of medicine will read Barney's paper, to the end that they be more on the watch, not for early signs of malignant disease of the urinary system alone, but for cancer of other parts of the body as well.

THE BOSTON FLOATING HOSPITAL 1891—1927

THE Trustees of the Boston Floating Hospital have made a wise decision not to rebuild the hospital boat which was burned last year, just before the opening of its season. This famous institution, originated in 1891 by the Reverend Rufus B. Tobey, Associate Pastor of Berkeley Temple, has had a long and useful career and has amply served the purpose, not for which it was intended, but for which it came to be used. Originally conceived as a philanthropy to provide mothers and children with a needed day of rest on the cool waters of the harbor, it gradually came to take on more and more the activities of a hospital, until finally its hospital functions entirely displaced its sociologic ones.

Many of our foremost pediatricians of today received part of their early training on the Boston Floating Hospital, and it has contributed much, both in the training of physicians in the care of the diarrheal diseases of summer, and in the study of those conditions. Due in great part, no doubt, to the studies carried on in the hospital ship itself, these diseases have diminished to a point where they no longer show a definite seasonal prevalence and no longer demand special facilities for combatting them.

Coincidentally the available beds for children in the city have increased from 120 to 434, so that the facilities of the Floating Hospital are no longer needed. Indeed, the opinion of those most familiar with the hospital care of children and of those especially acquainted with the work of the Floating Hospital is that better service to the children can be rendered by a hospital on shore.

There is still tremendous opportunity for increasing our knowledge of the diseases of children, for studying their care, and for rendering medical service to them. It is a satisfaction to know that the Trustees of the Floating Hospital are about to inaugurate a study to ascertain how the work in Boston among sick children can be most efficiently supplemented, and that the splendid work of the Floating Hospital will be carried on in a way most suited to the needs of the day.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

LAHEY, FRANK H. A.B., M.D. Harvard, 1904; F.A.C.S.; Surgeon to New England Deaconess Hospital and New England Baptist Hospital; Director of Surgery Lahey Clinic. His subject is: "The Crisis of Exophthalmic Goiter". Page 255. Address: 605 Commonwealth Ave., Boston.

MEIGS, JOE VINCENT. A.B., M.D. Harvard 1919; F.A.C.S.; Surgeon to Out-Patients, Massachusetts General Hospital and Palmer Memorial Hospital; Assistant Surgeon to Out-Patients Collis P. Huntington Memorial Hospital; Surgeon, Pondville Hospital at Norfolk and Vincent Memorial Hospital. His subject is: "Radium and Its Use in Gynecology." Page 258. Address: 264 Beacon St., Boston.

FREMONT-SMITH, FRANK. M.D. Harvard, 1921. Instructor in Neuropathology, Harvard Medical School; Assistant Physician to Neurological Service, Boston City Hospital. His subject is: "The Spinal Fluid in Meningitis." Page 264. Address: Massachusetts General Hospital, Boston.

THORNDIKE, TOWNSEND W. A.B., M.D. Harvard, 1902. Prof. of Dermatology, Tufts Medical School; Physician-in-Chief in Diseases of the Skin, Boston City Hospital. His subject is: "Report of a Case of Dermatitis Congelation with Complete Destruction of Tissues." Page 265. Address: 475 Commonwealth Ave., Boston.

RILEY, AUGUSTUS. A.B., M.D. Harvard, 1907. Instructor in Genito-Urinary Surgery, Harvard Medical School; Associated-Chief, Genito-Urinary Dept., Boston Dispensary; Junior Visiting Surgeon, Boston City Hospital. His subject is: "Deaths from Alypin Poisoning." Page 267. Address: 868 Beacon St., Boston.

PHELPS, O. D. A.B., M.D. Dartmouth Medical School, 1907. F.A.C.S. Urologist Worcester City Hospital; Cystoscopist Memorial Hospital; Assistant Surgeon Holden District Hospital. His subject is: "Report of a Case of Spinal Cord Bladder". Page 269. Address: 27 Elm St., Worcester.

PETERS, CLINTON N. A.B., M.D. Maine Medical School, 1914. F.A.C.S. Urological Surgeon Maine General Hospital and Barnabas Hospital, Portland, Maine; Consulting Urologist, Portland City Hospital and U. S. Marine Hospital, U. S. P. H. S. Woodfords, Maine. His subject is: "Primary Epidermoid Carcinoma of the Male Urethra." Page 269. Address: 655 Congress St., Portland, Maine.

STONE, ERIC. S.B., M.D. Harvard, 1918. Visiting Urologist, Providence City Hospital; Assistant Visiting Urologist, Memorial Hospital, Pawtucket; Consulting Urologist, Providence Lying-In Hospital; Assistant Surgeon, Gynecological Service, Rhode Island Hospital. His subject is: "A Case in Which Intestinal Pathology Apparently Caused Symptoms in the Upper Urinary Tract". Page 270. Address: 199 Thayer St., Providence, R. I.

DEMING, CLYDE L. A.B., M.D. Yale, 1915. F.A.C.S. Assistant Clinical Professor Surgery and Urology, Yale; Chief of Department of Urology at New Haven Dispensary. His subject is: "Sarcoma of Kidney: Cured." Page 273. Address: New Haven Hospital, New Haven, Conn.

MIXTER, CHARLES G. B.S., M.D. Harvard, 1906. F.A.C.S. Instructor in Surgery, Harvard Medical School; Associate Visiting Surgeon, Children's Hospital; Consulting Surgeon: Leonard Morse Hospital, Natick; Jordan Hospital, Plymouth; Benjamin Stickney Cable Hospital, Ipswich; Cape Cod Hospital, Hyannis; The Amesbury Hospital, Amesbury; Anna Jaques Hospital, Newburyport. His subject is: "A Case of Pyonephrosis in Infancy". Page 275. Address: 270 Commonwealth Ave., Boston.

CROSBIE, ARTHUR H. A.B., M.D. Harvard, 1906. F.A.C.S. Urologist, Boston Dispensary, Cambridge Hospital, Massachusetts Women's Hospital, Malden Hospital, Symmes Arlington Hospital, Chelsea Naval Hospital; Assistant Urologist, St. Elizabeth's Hospital and Beth Israel Hospital. His subject is: "Solitary Cyst of the Kidney". Page 277. Address: 520 Commonwealth Ave., Boston.

BARNEY, J. DELLINGER. A.B., M.D. Harvard, 1904. F.A.C.S. Chief of Service, Urological Department, Massachusetts General Hospital; Assistant Professor Genito-Urinary Surgery, Harvard Medical School; Consulting Urologist, Salem Hospital; Waltham Hospital; Cable Hospital, Ipswich; Gale Hospital, Haverhill; U. S. Marine Hospital, Chelsea; Massachusetts Eye & Ear Infirmary; Hunt Memorial Hospital, Danvers; Peterboro Hospital, Peterboro, N. H. His subject is: "The Early Diagnosis of Malignant Disease of the Urinary Tract." Page 281. Address: 87 Marlboro St., Boston.

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The Drug Treatment of Syphilis

To many practitioners of today the mention of Syphilis scarcely recalls the therapy in vogue a quarter of a century ago, so completely has arsphenamine literature supplanted that of mercury in discussions of the management of this disease. Within the past few years (since 1921) however, still another drug has been forcing itself into prominence and if one attempts to look up the current literature on the treatment of Syphilis he is impressed by two things. In the first place with the fact that a disease which came into prominence in Europe after Columbus's return from his voyage of discovery to America, and has always been one, than which no other came near having had a drug treatment which was so nearly a specific, should still occupy so large a place in the field of therapeutic investigation. In the second place one is impressed by the volume of literature which is accumulating upon the use of Bismuth as a contender with arsenic and mercury for honors in the treatment of Syphilis. Apparently the "therapeutic Nihilism" of the present time has not extended to the treatment of Syphilis. What mercury accomplished so well, when conditions were favorable for its use and for so long a time, was improved upon, at least in the rapidity of its action, by "606" and now claims are being made for this newest addition to the anti-syphilitic armamentarium which are even more extravagant. Has mercury lost its cunning, has Syphilis itself modified its character or are we, in our desire to discover something new, blinded to the merits of the treatments of the past?

From the earliest times mercury and later Iodide of Potassium in conjunction, have been employed in treatment along with multitudinous other drugs. From Ehrlich's laboratory the first real rival of the Mercury and Iodide treatment was put out in 1910 when "606" was given to the World. Expectation was high and extravagant propaganda served for a time, as is usual, to give color to the original hopes for its success. These expectations have not been wholly borne out and the various modifications of the original arsenical preparation, though they have avoided certain of the disagreeable complications of treatment, have not added to its efficacy. After the initial enthusiasm for arsphenamine had subsided it was combined with mercurial salts and other drugs in many different formulae. These have served more to complicate the situation than they have to meet the varying conditions. This continued to be the status of the management of syphilis until, in 1889, the first suggestion of Bismuth as a possibility in the treatment was brought forward. Bolzer employed it but was discouraged by the frequency and severity of the stomatitis and enteritis he encountered. After that nothing more was done until, in 1916, Robert and Santon demonstrated that the Spirochaeta Gallinorum, occurring in animal organisms, could be killed by Bismuth. Their studies were interrupted by the War so that the next contribution to the subject came from Sazaran and Levaditi in 1921, who tried this out on Trypanosomiasis. With Bismuth they were able to cause these organisms to disappear from the blood stream in 48 hours though they came back invariably in 15 days, so no cures were effected. Encouraged however by this experience they went on to the treatment of syphilitic ulcers which they were able to rid of spirochetes in three days.

They conclude that primary and secondary syphilis is as effectively, but no more effectively, treated by Bismuth as by Arsenical preparations and that it can be used in combination with either mercury or arsenic or both. This very fact of course blocks one in crediting its true value to any of these drugs. The Library is well supplied with books on the early history of the treatment of Syphilis as well as with its current literature. During the fortnight beginning August 13th there will be on exhibition in Holmes Hall some of the best of this early literature on Syphilis and the important contributions which have characterized progress in its study and treatment.

MISCELLANY

THE DEDICATION OF BETH ISRAEL HOSPITAL

On Wednesday, August first, 1928, the friends of Beth Israel Hospital were permitted to inspect the building and attend the dedicatory exercises.

Unfortunately unfavorable weather prevented the out-of-door exercises where accommodations had been provided for a large number.

While the guests were examining the construction, arrangement and furnishings, the Aleppo Temple Band provided an entertainment.

The literary exercises were stopped by a downpour and the few who could be accommodated in the lecture room listened to inspiring addresses. Hon. A. C. Ratshesky presided. In the absence of His Excellency Alvan T. Fuller, Lieutenant Governor Frank G. Allen brought the greetings of the State to the Institution.

Other speakers scheduled were the Mayor of Boston, Malcolm E. Nichols; Jennie Loitman Barron, President of the Beth Israel Hospital Women's Auxiliary; Dr. F. A. Washburn, Director of the Massachusetts General Hospital; Dr. A. Warren Stearns, Dean of the Tufts College Medical School; Dr. Milton J. Rosenau of the Harvard Medical School; Dr. Harry Linenthal, Physician-in-Chief of the Beth Israel Hospital; Mr. Gifford P. LeClair, representing the architects; Mr. Max Shoalman, Chairman of the Building Committee; Mr. Albert A. Guzberg, President of the Hospital; Dr. Charles F. Wilinsky, Director of the Hospital; Mr. Arthur Kahn, of the Council of Jewish Jur; Mr. Louis E. Kirstein, Chairman of the Executive Committee of the Hospital, and Dr. George H. Bigelow, Commissioner of Public Health of Massachusetts.

The benediction was pronounced by the Rev. H. H. Rubenvitz.

This institution is a great addition to the medical resources of Boston. Its staff consists of consultants selected from the leading physicians and surgeons of the city and its visiting service will be carried on by men who have achieved high standing in the medical profession. Every department of medicine has a full corps of chiefs and assistants.

The reputation of Dr. Wilinsky, who for many years has been engaged in public health work, is a guarantee of energetic devotion and good management. He will make a successful administrator.

Although the credit for this first-class modern hospital belongs to the Jewish people of this section it will be conducted on nonsectarian principles and stand as the contribution of the race to the advancement of medicine in this country. The generosity exhibited by the contributors to this great hospital is evidence of the deepest interest in the welfare of humanity.

The beauty and equipment of the buildings will add inspiration to the hearts of those who are to serve the sick and suffering within these walls.

The Jewish people of Boston are to be congratulated for this great achievement.

MAINE MORTALITY STATISTICS: 1927

The Department of Commerce announces that the 1927 death rate for Maine was 1,382 per 100,000 population as compared with 1,437 in 1926. This decrease in 1927 is largely accounted for by decreases in the death rates from influenza (from 60 to 39 per 100,000 population), pneumonia, all forms (from 106 to 85), nephritis (from 116 to 103), and diabetes (from 24 to 21).

Increases in 1926 are shown in the death rates from diseases of the heart (from 253 in 1926 to 261 per 100,000 population), and cancer (from 134 to 137).

THE BOSTON DISPENSARY CANCER CLINIC

It will be of interest, especially to the physicians of greater Boston, to learn that the Boston Dispensary Cancer Clinic has been added to the growing list of State-aided cancer clinics which are being developed as a leading feature of the program for cancer control under the direction of the State Department of Public Health.

Whereas Boston hospitals have rendered generous clinic service in the diagnosis of malignant disease, there has been up to the present time no State-aided cancer clinic serving metropolitan Boston.

The reason for the selection of the Boston Dispensary, as stated in the words of Dr. Bigelow, Commissioner of Public Health, is "because it is the one large out-patient service in Boston not connected with a general hospital which offers facilities for discovery of cancer. Its large staff, its central location, and its daily clinics open to patients from 8:45 to 10:30 A. M., make it the logical institution to form another link in the chain of cancer clinics associated with the State Cancer Hospital at Pondville."

The new clinic will draw no distinctions as to financial ability. Persons desiring examination will be admitted any forenoon to the appropriate clinic. If unable to pay for the examination they will be admitted free; otherwise they will pay the customary fee of $.75. Patients referred by practicing physicians will be examined and returned to the referring physician with a complete report of the findings. Similar procedure will be followed with patients sent by hospitals which do not offer a cancer service of their own. At the request of the referring physician or hospital, the Dispensary clinic will assume full responsibility of management of the case. In suitable cases the patient will be referred to the state hospital at Pondville for care and treatment. Ambulatory cases not requiring hospital treatment will be treated in the clinic. A few patients can be accommodated for short term observation, diagnosis and treatment in the wards of the Dispensary hospital, which contain six beds. These beds will be used chiefly for diagnosis and for short stay for radium and X-ray treatments. Patients requiring surgical treatment will be referred to Pondville or hospitalized elsewhere through affiliations with other hospitals.

The plan of organization provides joint management and responsibility through a cancer clinic staff which controls the policy of the clinic. This staff is made up of the following physicians and surgeons: Hilbert F. Day, M.D., General Surgery; A. K. Paine, M.D., Gynecology; Augustus Riley, M.D., Genito-Urinary Diseases; Joseph J. Skirball, M.D., Diseases of the Eye; H. J. Inglis, M.D., Diseases of the Ear, Nose and Throat; Frank P. Williams, M.D., Diseases of the Rectum; John J. Adams, M.D., Orthopedic Diseases; Joseph H. Pratt, M.D., Internal Medicine; William A. Hinton, M.D., Pathologist; Harry F. Friedman, M.D., Roentgenologist, and Physician-in-charge of Radium Therapy.

The Cancer Clinic Committee is composed of the above named specialists with the addition of Arthur G. Rotch, Mrs. Richard M. Saltonstall, Miss Kate McMahon, representing the Board of Managers; and Frank E. Wing, Director.

The Clinic will have the advantages of a full time social worker who has had many years' experience in handling the social and economic problems connected with medical work. There will also be a surgically trained nurse at all times in attendance in the clinic to assist in examination, preparation of patients for radium and X-ray treatments, and similar services.

Patients coming to the Boston Dispensary for examination will be admitted on any day between 8:45 A. M. and 10:30 A. M. The first admission will be to the appropriate clinic of the Dispensary which deals with that area of the body in which symptoms occur. If after examination there is a question of malignancy, the chief of the Cancer Clinic is consulted and management of the case thereafter becomes a joint responsibility, the chiefs of the two departments deciding whether it is a case for surgical, X-ray or radium treatment.

In other respects this clinic does not differ from others in the group of State-aided cancer clinics which are now regularly held in Newton, Springfield, Worcester, Lynn, Lowell, Fitchburg, Gardner, Leominster, New Bedford, Lawrence, Greenfield, Pittsfield, North Adams, Great Barrington, and the State Cancer Hospital at Pondville.

NO DIPHTHERIA DEATHS IN CAMBRIDGE

Cambridge, Mass., has achieved the distinction of heading the list in diphtheria prevention for cities with population over 100,000 by having no deaths from the disease in 1927. Duluth, in 1925, is the only other city which has registered no diphtheria deaths for a year in the last five years. Seven cities had no typhoid deaths last year.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1927 AND SEVEN YEAR AVERAGE

MONTH ENDING JULY 7

	1928					1927			
	Wk. ending June 16	Wk. ending June 23	Wk. ending June 30	Wk. ending July 7	Average cases reported for week corresponding to July 7 for past seven years	Wk. ending June 18	Wk. ending June 25	Wk. ending July 2	Wk. ending July 9
Actinomycosis	-	-	-	-	-	-	-	-	-
Anthrax	-	-	-	-	-	-	-	-	-
Botulism	-	-	-	-	-	-	-	-	-
Cerebrospinal Men.	-	1	1	1	2	2	-	1	1
Chickenpox	37	61	33	17	26	123	90	33	36
Conjunctivitis Inf.	-	-	-	-	-	-	-	-	-
Diphtheria	14	15	13	9	26	28	34	31	13
Dysentery, Amoebic	-	-	-	-	-	-	-	-	-
Dysentery, Bacillary	-	-	-	-	-	-	-	-	-
Encephalitis, Epid.	1	-	-	-	1	-	-	-	-
Favus	-	-	-	-	-	-	-	-	-
German Measles	32	26	5	5	5	6	3	3	7
Hookworm Infection	-	-	-	-	-	-	-	-	-
Influenza	1	2	1	1	1	-	-	2	2
Leprosy	-	-	-	-	-	-	-	-	-
Malaria	1	-	-	-	1	1	1	2	-
Measles	289	293	247	294	77	55	68	47	30
Mumps	75	81	25	34	13	47	30	20	21
Paratyphoid Fever	1	-	-	2	-	-	-	-	-
Pneumonia (Broncho)	20	12	20	14	12*	19	24	10	8
Pneumonia (Lobar)	24	20	26	7	11	33	23	10	13
Poliomyelitis	1	1	1	1	-	1	-	-	-
Scarlet Fever	27	30	27	18	32	56	48	23	40
Septic Sore Throat	-	1	-	-	-	2	6	2	3
Smallpox	-	-	1	-	1	-	-	-	-
Tetanus	2	-	-	1	-	-	-	-	-
Trachoma	-	-	-	-	-	-	-	-	-
Trichinosis	-	-	-	-	-	-	-	-	-
Tuberculosis (pul.)	43	29	31	28	30	33	50	29	21
Tuberculosis (o.f.)	10	7	10	1	5	4	2	2	7
Typhoid Fever	-	1	2	-	8	1	-	2	1
Typhus Fever	-	-	-	-	-	1	-	-	-
Whooping Cough	117	91	101	115	51	21	16	12	25
Gonorrhoea	26	27	31	17	18	28	55	16	17
Syphilis	35	49	77	26	21	21	24	36	28

*Average for three years. Made reportable January 1, 1925. Remarks: No cases of cholera, Asiatic, glanders, plague, rabies in humans and yellow fever during the past seven years.

CORRESPONDENCE

WHO SHOULD PAY THE COST OF PROPHYLACTIC TREATMENT IN CASES OF INJURY FROM RABID DOGS?

18 Dalton Road,
Belmont, Mass.,
July 28, 1928.

The Editor,
NEW ENGLAND JOURNAL OF MEDICINE.

Dr. Bigelow, in his communication of the 28th of June to the JOURNAL (July 26th), has apparently assumed the theological privilege of using my previous communication relative to who should bear the cost of prophylactic treatment in rabies as a text for a sermon and hence cannot be held strictly to account for not sticking closely thereto. He would seem to have made an unwarranted deduction in an attempt to stress the admitted importance of speed in instituting treatment.

Any procedure which might have a bearing, however remote, upon the control of rabies it would seem should be of interest to health authorities. Of course, if a local city or town ordinance providing that the cost above referred to should be paid by the dog owner or, if unknown or unable to pay, by the city or town, be an illegal procedure, the question becomes an ethical one only.

There would not seem to be a very close analogy between an encounter with a brick obeying the law of gravity and an encounter with a stray, ownerless, possibly rabid dog. The responsibility would, in the former instance be quite definite. We would undoubtedly know who had transformed the potential into kinetic energy. In the latter instance the responsibility could be charged only to the community for laxly or otherwise permitting the animal to be at large.

But speaking of absurdities the following which has just recently come to my attention may not be generally known. All cities and towns are required to license all dogs within their confines. The fees thus collected are turned over to the state and held as a fund from which it is possible to pay owners for the injury or death of cattle due to dogs. In other words, if a dog injures or kills a cow I own, the state makes financial restitution. If a dog injures my child and possibly infects it with rabies, I am permitted the privilege of either paying all costs myself or of going to court with all that that expression connotes to try to collect damages. As there is a reason for anything, there must also be one for the subtle distinction just mentioned. Said the boy friend's girl friend, "Aint sasiety wonderful!"

Yours truly,
EDWARD A. LANE, M.D.

REPORT OF THE PLYMOUTH DISTRICT MEDICAL SOCIETY

August 3, 1928.

NEW ENGLAND JOURNAL OF MEDICINE,
126 Mass. Avenue,
Boston, Mass.

Gentlemen:

May I ask that the following brief facts be published in the JOURNAL, with reference to the resolution of the Plymouth Medical Society.

Summonses totaling $30,000 were issued against Dr. Moore and his Hospital, December 22, 1927. There were ten letters between Doctor Moore and me from December 22, 1927, on other subjects, including another suit, yet the first notice I received from him about this case was March 27, 1928.

Mr. Hartnett, Head Claim Adjuster for the Company, saw Dr. Moore in Brockton shortly after the 27th and learned that the case was set for trial only a few days later. This gave the Insurance Company absolutely no opportunity to make any investigation or preparation for trial.

Detailed facts of this case have been submitted to various members of the Massachusetts Medical Society whom Doctor Moore had seen. They have all said that we were absolutely right.

The entire matter could have been ironed out to the satisfaction of everybody but Dr. Moore refused to see me and talk the matter over.

Doctor Moore still carries his Hospital and personal insurance with me. I would be very glad to submit the detailed facts again to any member, or any Committee, that the Society may wish to appoint.

Yours very truly,
GEORGE H. CROSBIE.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION

COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn St., Chicago, Ill.
June 29, 1928.

Editor, THE NEW ENGLAND JOURNAL OF MEDICINE,

Dear Doctor:

In addition to the articles enumerated in our letter of May 25th, the following have been accepted:

Abbott Laboratories
- Tablets Ephedrine Hydrochloride—Abbott, ¼ grain.

Deshell Laboratories, Inc.
- Petrolagar (Unsweetened).

Mead Johnson & Co.
- Mead's Standardized Cod Liver Oil, Flavored.

Parke, Davis & Co.
- Glaseptic Ampoules Ephedrine Sulphate—P. D. & Co., 0.05 Gm. (¾ grain), 1 c.c.
- Capsules Ephedrine Sulphate—P. D. & Co., 0.05 Gm. (¾ grain).
- Paroidin.

Prophylacto Mfg. Co.
- Capsules Ephedrine Hydrochloride-Pemco, 0.3 Gm.
- Capsules Ephedrine Hydrochloride-Pemco, ¼ grain.

E. R. Squibb & Sons
- Squibb's Vitavose.

Swan-Myers Co.
- Gentian Violet Capsules—Swan-Myers, 1 grain.

Yours truly,
W. A. PUCKNER, *Secretary.*
Council on Pharmacy and Chemistry.

NEWS ITEMS

DR. FRANK H. LAHEY GOES ABROAD—Dr. Frank H. Lahey has sailed for Europe and will be gone about six weeks.

UNITED STATES PUBLIC HEALTH SERVICE—CHANGE OF DUTY OF DR. SWEENEY—Surgeon A. R. Sweeney. Directed to proceed from Gallops Island, Boston, Mass., to Portsmouth, N. H., and return, for the purpose of investigating and submitting a report with recommendations as to the exercise of quarantine functions at that port. July 19, 1928.

DR. LUMSDEN ASSIGNED TO WORK IN MICHIGAN AND NEW ENGLAND—Sr. Surgeon L. L. Lumsden has been directed to proceed from Washington, D. C., to Ann Arbor, Michigan, and such other places in that State and the States of Massachusetts, Rhode Island, and Connecticut, as may be necessary, and return, to confer with State and local health officials regarding demonstration work in rural sanitation. July 7, 1928.

DR. CLIFFORD L. DERICK COMES TO THE HARVARD MEDICAL SCHOOL—A reprint of changes in the staff of the Rockefeller Institute for Medical Research contains the information that Dr. Clifford L. Derick has accepted an appointment as assistant professor of medicine at the Harvard Medical School and physician to the Peter Bent Brigham Hospital.

THE AWARD OF THE TRUDEAU MEDAL—The National Tuberculosis Association awarded the Trudeau Medal to Sir Robert W. Philip, M.A., M.D., at the time of the annual meeting held recently in Portland, Oregon. Sir Robert W. Philip is a Fellow of the Royal College of Physicians of Edinburgh and Honorary Fellow of the Gesellschaft für Medizin of Vienna. He has done creditable work in connection with tuberculosis and started the first tuberculosis dispensary in Edinburgh in 1887.

The Trudeau Medal named in honor of Dr. Edward Livingstone Trudeau is awarded annually by a committee of tuberculosis authorities in the United States.

DR. LUMSDEN OF THE U. S. P. H. S. ASSIGNED TO WORK IN MICHIGAN AND NEW ENGLAND—Sr. Surgeon L. L. Lumsden has been directed to proceed from Washington, D. C., to Ann Arbor, Michigan, and such other places in that State and the States of Massachusetts, Rhode Island, and Connecticut, as may be necessary, and return, to confer with State and local health officials regarding demonstration work in rural sanitation. July 7, 1928.

RECENT DEATH

WEBSTER—DR. GEORGE ARTHUR WEBSTER, a Fellow of the Massachusetts Medical Society from 1888 to 1923, an otologist of Boston, died at Lawton Hall, Brattleborough Retreat, Brattleborough, Vt., July 31, 1928, at the age of 63. He was born at Littleton, N. H., February 24, 1865, and came to Boston with his parents at an early age. While a student at Harvard Medical School (1889) he served as house officer at Boston City Hospital and then settled in practice in Boston. From 1894 to 1904 he was instructor in otology at Tufts College Medical School and he was assistant aural surgeon to the Massachusetts Charitable Eye and Ear Infirmary and aurist to the Carney, St. Elizabeth's and Boston Floating hospitals. Dr. Webster was a member of the American Laryngological, Rhinological and Otological Society and actively engaged in practice until 1922 when his health failed and he went to the Brattleborough Retreat. He was a 32d degree Mason and a member of the Congregational Church.

He was married in 1914 to Mary Russell Waldron, daughter of the late Rev. Daniel W. Waldron, of Boston, who survives him.

NOTICES

CHANGE OF ADDRESS

Dr. Maurice Fremont-Smith has removed his office to 264 Beacon St., Boston.

REMOVAL OF THE BOSTON HEALTH LEAGUE, INC.

Beginning July 30, 1928, the League will be located at Rooms 910-913 Carney Building, 43 Tremont Street. Telephones Haymarket 2664, 2665. With the League at this same address will be Boston Council of Social Agencies, The Council's Purchasing Bureau.

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following open competitive examinations:

SENIOR TOXICOLOGIST

Applications for senior toxicologist must be on file with the Civil Service Commission at Washington, D. C., not later than September 5.

The examination is to fill vacancies in the Bureau of Chemistry and Soils, Department of Agriculture, for duty in Washington, D. C., or in the field.

The salary range for this position is from $4,600 to $5,200 a year. Higher-salaried positions are filled through promotion.

SENIOR MEDICAL OFFICER
MEDICAL OFFICER
ASSOCIATE MEDICAL OFFICER
ASSISTANT MEDICAL OFFICER

Applications for the above listed positions must be on file with the Civil Service Commission at Washington, D. C., not later than December 29.

The examinations are to fill vacancies in hospitals of the Veterans' Bureau, the Public Health Service, and the Indian Service, and in other establishments of the Federal classified service throughout the United States.

CYTOLOGIST

Applications for cytologist must be on file with the Civil Service Commission at Washington, D. C., not later than September 5.

The examination is to fill vacancies in the Hygienic Laboratory, U. S. Public Health Service, Washington, D. C., and vacancies occurring in positions requiring similar qualifications.

The entrance salary for this position is $3,700 a year. Higher-salaried positions are filled through promotion.

JUNIOR MEDICAL OFFICER (INTERNE)

Applications for junior medical officer (interne) must be on file with the Civil Service Commission at Washington, D. C., not later than December 29.

The examination is to fill vacancies in the U. S. Veterans' Bureau Hospitals throughout the United States.

The entrance salary ranges from $1,860 to $2,400 a year. Higher-salaried positions are filled through promotion.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

REPORTS AND NOTICES OF MEETINGS

THE ANNUAL MEETING OF THE NATIONAL TUBERCULOSIS ASSOCIATION

Eight hundred and sixty-six physicians and lay workers attended the Twenty-fourth Annual Meeting of the National Tuberculosis Association held at Portland, Oregon, June 19th, 20th, and 21st.

Officers for 1928-1929 were elected as follows: President, Dr. Eugene L. Opie of the Phipps Institute, Philadelphia; Vice-President, Dr. Ray W. Matson, Portland, Oregon; Honorary Vice-Presidents, Hon. Calvin Coolidge and Dr. William H. Welch; Treasurer, Henry B. Platt; Secretary, Dr. Charles J. Hatfield; Clerk, W. B. Drummond; members of Executive Committee—Dr. Kendall Emerson, Worcester, Massachusetts, Dr. Linsly R. Williams, New York, Dr. Alfred Henry, Indianapolis, Indiana, Robert G. Paterson, Columbia, Ohio, Fred M. Stein, New York, Dr. Roy S. Peters, Albuquerque, New Mexico, and Dr. Henry Boswell of Mississippi.

At the opening general session, Dr. Alfred Henry, Vice-President, presided in the absence of the President, Dr. H. Longstreet Taylor of St. Paul, Minnesota, who was prevented from attending the meeting by illness. Dr. Henry read the President's address on "Relapses in Pulmonary Tuberculosis". Dr. Taylor indicated that relapses are mainly due to attacks of intercurrent diseases, serious accidents, disobedience of the rules of proper methods of work or play, to mental or physical fatigue, or to a return to unhygienic environments. He said that the educational value of a stay in a sanatorium is greatly increased by the fact that all the patients are doing the same things and the new patients as they arrive are inducted into the new life and quickly learn the scientific mode of living by practice rather than by precept. Dr. Taylor strongly stressed the danger of returning home from a sanatorium before the physical condition of the patient warrants.

"Consumption Cure Quackery" was denounced by Dr. Arthur J. Cramp of the American Medical Association, Chicago, Illinois. Dr. Cramp said in part:

"Alleged cures for consumption are born weekly. Many come from well-meaning, but ignorant persons, who, fortunately, never commercialize their remedies and, therefore, do but little harm. The menace to the consumptive are the quacks who use all the arts of modern advertising to convince him that the long hoped-for specific has been discovered.

Various factors conspire to make the consumptive an easy mark for the quack: The general belief that for every ailment there is, if one only knew where to go for it, a specific remedy; the idea that every pathologic state can be cured by something out of a bottle; the fact that the medical profession frankly admits it knows of no drug that will cure tuberculosis; the remissions so common in this disease, that create an optimism, play into the hands of quacks; the temporary improvement in the consumptive that follows any change of treatment.

There are styles in quackery. We no longer find on the shelves of reputable drug stores 'patent medicines' specifically recommended for the cure of consumption. The National Food and Drugs Act, which prohibits lying claims on or in the trade package has been largely responsible for the disappearance of the old 'patent medicine' consumption cure. Then, too, the ethical advertising standards of the better newspapers of the country bar advertisements of cures for consumption.

The 'consumption cures' of to-day are exploited either through quasi-scientific institutions or by mail-order quacks. Two institutional 'cures' that, in their day, flourished and, after exposure, died are discussed briefly. Of the mail-order 'cures' there have been hundreds. Some of those that flourished a few years ago went out of existence after their worthlessness was made clear by the American Medical Association. Certain mail-order 'cures' of more recent vintage have been investigated by the federal authorities—declared frauds and debarred from the United States Mails.

The remedy for the menace of the fake consumption cure is education—and more education. People are gullible not because they lack brains but because they lack knowledge. Iteration and reiteration of the fundamental facts regarding the prevention and cure of tuberculosis is the only way of overcoming the present toll of human life taken by the consumption-cure quack."

Dr. G. C. Bellinger, Director of the Oregon Tuberculosis Hospital, Salem, Oregon, spoke on "The Responsibility of the Sanatorium in After Care". He indicated that the sanatorium is not living up to its full obligation with respect to the patient for whom it has given its care for a period of months or years until the following lines of activity are carried out:

1. Reports from the family physician from time to time as to the progress of the patient.
2. Direct contact between the sanatorium and the patient with the opportunity for the patient to return from time to time for a check up and further advice.

Dr. A. M. Wehenkel of the Department of Health of Detroit, Michigan, spoke on "Home Sanatorium Treatment for Selected Patients". Dr. Wehenkel stated that since there are approximately 450,000 individuals in the United States suffering from tuberculosis and only 210,000 are hospitalized, it must be recognized that for a variety of reasons there will always be a large number of persons who will not take sanatorium treatment.

Dr. Wehenkel further said, "On account of large waiting lists for hospitalization, statistics show that in 85% of patients at the time of admission to the sanatorium the disease is either moderately or far advanced and 40% of these stay less than three months. The National Tuberculosis Association during its history has never promulgated a more intelligent and economic drive than the recent one having for its objective the importance of an early recognition of tuberculosis. The findings of tuberculosis as a result of this drive have increased from 10 to 25%. If less than 50% of all patients are hospitalized, what will become of the many patients who cannot be accommodated?

The erection of public institutions cannot keep pace with the findings. Early diagnoses are of no avail when early treatment cannot be established. Long delays in hospitalization bring about discontentment and melancholy. The disease becomes pro-

gressive; many fall into the hands of quacks and others become poverty stricken. Some will remain at work as long as physical strength will permit. Medical shoppers become apparent. The picture of delayed treatment becomes a pathetic drama. Facing a situation of this sort in the City of Detroit, we have undertaken to establish a home sanatorium treatment. The following factors are necessary in the proper selection of patients to be treated in the home:

1. Suitable quarters.
2. Coöperative patients.
3. Unimproved or stationary cases after spending several months in a sanatorium.
4. Patients who fear institutions.

Essentials of proper home treatment:

a. One person assigned to the complete care of the patient.

b. A complete medical and nursing program.

c. Adjustment of social and economic conditions in the home.

d. Proper isolation of the patient and a correct technique of the attendant in caring for the patient.

e. The removal of children wherever possible or a proper supervision of their care while left in the home.

The visiting nurse's function in this treatment is almost entirely educational. She demonstrates to the patient and attendant the technique in the care of the patient, the keeping of daily temperatures, the handling of the patient's diet, the management of bed linen, sputum technique, separate dishes, isolation of the patient and all details relative to the general management in the home. Her services are indispensable in a home treatment program.

The control of patients under this plan of treatment is achieved through the application of the following factors:

1. The patient's acquaintance with the disease.
2. The competency of the physician assigned to the work.
3. Educational advantages acquired through literature.
4. Record improvements.
5. Social and economic adjustments.
6. The untiring efforts of the visiting nurse.
7. The exclusion of all business worries.
8. A constant attitude of kindness on the part of those in attendance.

We began this work the latter part of 1925. Up to the present we have cared for 275 patients under this plan and have noted results.

In conclusion, it is the writer's desire to express in complimentary terms, words of heart-felt gratitude on the manner and efficiency with which the National Tuberculosis Association has promulgated the greatest drive in history, namely: the early recognition of tuberculosis. It is therefore hoped that in the near future we may become engaged in an enterprise equally important—EARLY TREATMENT."

Dr. William C. Hassler of the Department of Public Health, San Francisco, California, spoke on "The Health Department's Responsibility in After Care". He summarized the obligation of the Health Department under the following headings:

1. Continued medical treatment and observation preferably in an institution exclusively given over to the care of convalescents. Such an institution should have suitable provisions for occupational therapy and a fund for aiding dependent families of patients.
2. The maintenance of Chest Clinics for periodic examinations.
3. Follow-up letters advising care of physicians and periodic examinations for patients who have left town.
4. Provisions for sheltered employment to encourage hardening up for economic independence.

Dr. Ralph C. Matson, Director of the Open-Air Sanatorium, Portland, Oregon, spoke on "The Physician's Responsibility in After-Care". Dr. Matson advocated the keeping of the clinical chart of the patient during his sojourn in the institution by the patient himself. The chart now in use in the Portland Sanatorium provides for recording temperature and pulse graphs, weekly weight, extra nourishment, time in bed, time in the open-air, amount of exercise, and hours of work. The purpose of having the patient keep the chart while in the Sanatorium is to train him so that he may be able to continue the record of his progress after he leaves the Institution. Charts are returned to the Sanatorium at the end of each month; thus the physician obtains a very clear impression of the patient's condition from a study of th clinical record. The patient is forwarded a new chart for the next month with instructions to be followed.

Re-examination of the patient is made at regular intervals and the patient is kept under constant guidance until clinical recovery has taken place. Patients left to the after-care of visiting nurses alone sooner or later abandon the principles of rest and exercise carried out in most institutions. The physician must keep in immediate contact with the patient.

Frank Kiernan, Executive Secretary of the Massachusetts Tuberculosis League, read a paper on "Determining the Local Tuberculosis Program". He stressed the necessity of the volunteer association working in the closest harmony with the public health authorities but maintaining an attitude of independence. Each local association should constantly keep before it the three following questions:

1. Are the case finding agencies adequate and are they doing their work in a satisfactory manner?
2. Is the nursing service for home supervision sufficient and is it of the quality that counts in the prevention of tuberculosis?
3. What are the existing methods of health instruction of children and what is being done towards building up the health of the school children?

Mr. Kiernan explained the summer health camp work of the Affiliated Organizations of the Massachusetts Tuberculosis League.

W. R. Coblentz, Ph.D., of Washington, D. C., presented summary data on the transmissibility of ultraviolet radiation through glasses and glass substitutes used for therapeutic purposes.

Edison Pettit, Ph.D., of Pasadena, California, presented a paper on the comparative physical properties of sunlight and light from artificial sources.

Drs. Ben Goldberg, Henry C. Sweany, and Robert Brown of Chicago, Illinois, presented a paper on postmortem studies of tuberculous entireties in about two hundred and fifty tuberculous patients.

A paper on "Tuberculosis As An Industrial Accident" by Dr. John B. Hawes, 2nd, President of the Boston Tuberculosis Association, was read by Frank Kiernan in the absence of Dr. Hawes who was detained in Boston.

Those attending the National Meeting from Massachusetts were as follows: Dr. Kendall Emerson of Worcester, Miss Isabelle Hyams of Boston, and Mr. Frank Kiernan of Belmont.

THE ANNUAL MEETING OF THE SOUTHEASTERN MASSACHUSETTS ASSOCIATED BOARDS OF HEALTH

The annual meeting of the Southeastern Massachusetts Associated Boards of Health was in order in the school room of the Barnstable children's camp on the grounds of the county sanatorium on Wednesday, July 18. It was virtually a meeting on tuberculosis, and brought together some fifty local health officers, medical men and nurses.

The election of officers resulted in the following list for the coming year: President, W. Fred Delano of Fairhaven; Vice-Presidents, John B. Berry of Brewster and Charles R. Bassett of Yarmouth; Secretary-Treasurer, G. W. Hallett of Osterville, with an executive committee consisting of Dr. Richard T. McKnight and W. G. Kirschbaum of New Bedford and L. S. S. Russell of Dartmouth.

Dr. Paul Wakefield, Supervisor of Tuberculosis Clinics of the State Department of Public Health, outlined the ten-year program in a very practical way, noting in his introduction that the movement seems to be better known and understood in European centres like Rome and London, than in Massachusetts. Its purpose is to give children living on Massachusetts soil an opportunity to be free from tuberculosis. It is true that the general incidence of the disease is dropping, but it must be realized that this malady will not leave us without very decided pushing. If the ten-year program did nothing more than select the children with symptoms, it would be well worth while, but in fact it does much more. It inspects the children and seeks to put the unfortunate ones into good condition with bettered resistance, and is an economy. Dr. Wakefield dwelt on the educational value of the clinics, and told how the parents are invited into conference with the physicians and nurses, the purpose of the work carefully explained, and they in general become really interested.

The speaker likened this health movement to the construction of a building, in which it would represent the foundations. It would be absurd, in the light of modern knowledge to omit the foundations, but it is equally absurd to neglect to construct the building on them. For the superstructure, follow-up work is essential. As a matter of statistics, the interest of parents is growing, about one-third having taken action for the benefit of their children the past year, with indications that next year, fully half of them will be reached.

Dr. Wakefield, who has recently joined the staff of the Department after many years of service in China, spoke in no small praise of the courage manifested by the Department in undertaking so far-reaching a program.

Mr. Frank Kiernan, Executive Secretary of the Massachusetts Tuberculosis League, was the second speaker, giving a running sketch of the history of tuberculosis. It seems to have been mentioned first by Greeks, Democritus and Hypocrates, in B. C. 700 to 500, some of the symptoms being named. Galen a couple of centuries after the Christian era, recognized its infectivity, warned against contacts and advised a dry climate and milk diet, while Celsus of about the same period, set forth similar ideas, noting the value of sea voyages and change of climate. The story was continued from Sylvius, in the middle of the seventeenth century, who recognized relationships between lung conditions and phthisis, to Koch. The development of anti-tuberculosis work in this country was sketched and emphasis placed on the activity of volunteer organization with the aid of the Christmas seal.

Dr. H. S. Wagner, superintendent of the Barnstable County Sanatorium, told briefly the story of the children's health camp. It is rather harder to get boys for this camp than girls, and although it is fitted to be a preventorium, there has been thus far the difficulty that parents are unwilling to be separated from their children. Every town in the county has representation in the camp. One feature that is novel in institutions of the kind is a tonsil clinic, with free tonsil extraction if necessary.

Dr. Edward O. Otis of Boston was a guest of the association and spoke briefly. He emphasized the facts that home treatment of tuberculosis is difficult, and that sanatoria are refining their technique. A most valuable function of the sanatorium is in education and in teaching how to live a new life. After care is most important. He closed by commenting on the ten-year program, calling attention to the small infant mortality from tuberculosis and the great increase after the age of fifteen, which is an important field for future efforts.

The discussion included incidentally statements by Mrs. Mary C. Putnam, director of the Bristol County health camp on the grounds of the county hospital at Attleboro; Dr. C. W. Milliken, school physician of New Bedford on the underweight of school children and Dr. Richard T. McKnight, Southeastern District State Health Officer, who in response to requests outlined the septic sore throat situation at Lee, and spoke of the outbreaks of infectious disease in his district.

Mr. Kiernan announced that the State Tuberculosis League had received reports from its affiliated organizations throughout the Commonwealth which gave evidence of the largest number of children ever cared for at the summer health camps of the organization. There are now approximately 2,600 children in 17 camps. This year's new camp was established on a newly acquired camp site in the town of Hudson.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH HELD AT PEMBERTON INN, PEMBERTON, MASS., ON THURSDAY, JULY 26, 1928

Dr. Charles P. Sylvester was the first speaker and referred to the desirability of the annual registration of physicians as follows:

ANNUAL REGISTRATION OF PHYSICIANS

In the next session of the Legislature there will be introduced a bill providing for the annual registration of physicians. The Legislative Committees of the Massachusetts Medical Society and the Homeopathic Society have already voted to support it. You are, no doubt, thinking that it is only one more burden without any compensation for the $2 per year tribute. The practitioners, however, that it will really inconvenience are the unlicensed, the various types of medical law violators, including the quacks and the charlatans.

More than 1,000 of the 4,000 unregistered practitioners in New York were driven out last year which

was the first year of the operation of the law similar to the one proposed for Massachusetts. Many of these fugitives are now parking in Massachusetts and our machinery at the present time for eliminating them lacks not only modern improvements, but also the necessary funds which will be supplied by the passage of this bill.

Every State in the Union has made provision for the licensing of its practitioners of medicine. These licensing acts are designed to protect the public from unqualified and unscrupulous persons who represent themselves as physicians. In addition to protecting the public, the function of a Board of Registration in Medicine is not only to license the physician to practice medicine, but also to help protect him after he has been licensed.

The Medical Practice Act is of little value unless it is efficiently enforced. The existence in practically every State in the Union of a large number of unlicensed, irregular or unscrupulous physicians is ample proof of the fact that our licensing laws are not being adequately enforced.

The requiring of an annual registration of physicians is an attempt to enforce the Medical Practice Act more efficiently than is otherwise possible.

The annual registration of all physicians is now required in fourteen States; namely, Alabama, California, Connecticut, Delaware, Florida, Idaho, Iowa, Louisiana, Minnesota, Nebraska, New York, Oregon, Pennsylvania and Utah. Nineteen of those where annual registration is not now required volunteered the information that they approved the idea but had not yet been able to secure the necessary legislation.

The annual registration of physicians aids in enforcing the medical practice acts in the following ways:

1. Maintaining an accurate list of all licensed physicians.

2. Eliminating all unlicensed practitioners practically all of whom are charlatans.

3. Preventing the use of licenses of deceased physicians.

4. Disciplining licensed physicians for first or occasional breaches of the medical act or where the conduct is reprehensibly close to the line of illegality, by intimating that the board may refuse to continue the license by denying registration unless they will promise and agree in writing to be guiltless hereafter of the improper conduct or illegal practice concerning which information has been filed, or any other practices for which, according to law, a certificate to practice medicine has been revoked.

There are, of course, violations of the medical practice act that require more drastic action. It requires funds as a rule to restrain or punish a person who is practicing without a license. The raising of funds is accordingly another function of the annual registration of physicians. Such will be provided by the fees required for the annual registration or annual renewal of licenses.

To enforce a medical practice act properly it is necessary to have special enforcement agents who can secure the proper evidence and either lead or assist in the prosecution. In no State, so far as I know, was the act requiring the annual registration of physicians passed with the idea of providing revenue for the State. The theory is that the revenue shall be used to administer the law and enforce the provisions of the act, and we intend to see that provision be made in the law to have all the funds secured from the annual registration used for the administration and enforcement of the medical practice act.

Dr. George H. Bigelow, State Commissioner of Public Health discussed the so-called Food Handlers Bill (Chapter 229). Dr. Bigelow said that any legislation which would give the State Department authority to examine all food handlers was undesirable because the cost of such examinations would amount to a quarter of a million dollars. The present bill is intended to give employers or other officials authority to examine food handlers who may be suspected of being infected with communicable diseases or carriers of such organisms. The examination is to be made without cost to the person examined, but such persons also have the right to have specimens examined at their own expense by any laboratory authorized by the Department.

In the discussion Mr. George H. Allen of the U. S. Department of Agriculture outlined the work of the Bureau of Chemistry, which he represented, and stated that the functions of the Bureau of Chemistry were more to control adulteration of foods than they were to control foods from the standpoint of communicable diseases. Mr. A. G. Brehaut of the Boston Chamber of Commerce stated that many employers were in favor of the present food handlers bill and proposed to avail themselves of its provisions. He said that many employers desired to have routine examinations of all persons in their employ who handled food. He said that employers looked upon this bill as being a distinct governmental aid rather than governmental interference. Mr. Brehaut agreed with Dr. Bigelow in his feeling that the compulsory examination of food handlers was not desirable.

THE CLINICAL CONGRESS OF THE CONNECTICUT MEDICAL SOCIETY

The Fourth Clinical Congress of the Connecticut State Medical Society will be held in New Haven on September 18th, 19th, 20th, 1928. The program to be presented at the Congress this year is of broad interest and includes many speakers well known throughout America. In the list of the twenty or more physicians who will present material at the Congress are included:

Dr. Fred Wise, New York; Dr. John A. Kolmer, Philadelphia; Dr. James J. Walsh, New York; Dr. Walter C. Alvarez, Mayo Clinic; Dr. Hugh H. Young, Baltimore; Dr. Robert B. Osgood, Boston; Dr. Arthur J. Cramp, American Medical Association; Dr. John Homans, Boston; Dr. George S. Derby, Boston; Dr. Walter Bastedo, New York, and Dr. Byron Stookey, New York.

Attendance of the Congress is not limited to the members of the Connecticut State Medical Society, any physician may attend. The registration fee is $5.00. Medical students and hospital internes are admitted to the Congress without the payment of any fee. Dormitory accommodations are provided for a nominal charge in Yale University. Complete programs and registration cards may be obtained by applying to Dr. Creighton Barker, 129 Whitney Avenue, New Haven, Conn.

SOCIETY MEETINGS

August 13-18—University of Southern California, Los Angeles, Institute of Municipal Administration. Detailed information on page 253, issue of August 2.

September 10-14—American Electrotherapeutic Association. Complete notice appears on page 165 of the issue of July 19.

September 18-19-20—Clinical Congress of the Connecticut State Medical Society. Complete notice appears on page 302.

October 15-19—Interstate Post Graduate Association. Complete notice on page 1025, issue of June 28.

December 3-7—Radiological Society Convention. Detailed notice appears on page 712, issue of May 17.

DISTRICT MEDICAL SOCIETIES

Barnstable District Medical Society

Schedule of Meetings: August 2, 1928, November 1, 1928, February 7, 1929, May 2, 1929.

Essex North District Medical Society

October, 1928 (Wednesday afternoon)—A joint meeting with Middlesex East and North, and Essex South. Date and place to be announced.

November 1, 1928 (Thursday)—Censors meet at Hotel Bartlett, 95 Main Street, Haverhill (Tel. 3430), at 2 P. M.

January 2, 1929 (Wednesday)—Semi-annual meeting at Haverhill, at 12:30 P. M.

May 1, 1929 (Wednesday)—Annual meeting at Lawrence, at 12:30 P. M.

May 2, 1929 (Thursday)—Censors meet at Hotel Bartlett, 95 Main Street, Haverhill, at 2 P. M. (Tel. 3430.)

Norfolk District Medical Society

Below are the proposed meetings of the Norfolk District Medical Society for the 1928-29 Season. The schedule below will be adhered to as strictly as possible. The carrying out of the proposed plan will, of course, depend upon the acceptances of invitations extended to the speakers. Minor changes may be necessary.

October 30—Pondville Hospital. Dr. Lyman F. Jones, Superintendent. Inspection, 4 P. M.; Business Meeting at 5:30; Papers by the Staff; Collation.

November 21—Boston Medical Library. In combination with Suffolk District and Middlesex East District Societies. Subject, Physiotherapy—Dr. F. B. Granger.

January 29—Roxbury Masonic Temple. Subject, Treatment of Varicose Veins by the Injection Method—Dr. E. E. O'Neil. Dr. Homans will open the discussion.

February 26—Roxbury Masonic Temple. Dr. W. R. Ohler. Subject to be announced. Discussion to be opened by Dr. A. A. Hornor.

March 26 — Roxbury Masonic Temple. Subject and speakers to be announced.

May, 1929—Annual meeting program to be announced.

The Censors of the Society meet November 8, 1928, and May 9, 1929, at the Roxbury Masonic Temple, Warren Street, Roxbury, at 4 P. M., for the examination of candidates.

BOOK REVIEWS

Chemistry and Recent Progress in Medicine. By JULIUS STIEGLITZ, Chairman of the Department of Chemistry; Professor of Chemistry in the University of Chicago. Published by The Williams and Wilkins Company, Baltimore. 62 pages.

In this monograph, which contains the second course of the Charles E. Dohme Memorial Lectureship of the Johns Hopkins School of Medicine, delivered in 1923, Professor Stieglitz reviews the more important contributions made by chemistry to the progress of medicine. The lecturer first discusses the relation of preparative chemistry to recent progress in medicine, and says "In the field of preparative chemistry we can distinguish, again, three main and important lines of effort: first, the preparation and study of specific drugs entirely foreign to the normal chemistry of the body; second, the isolation and use of the active principles of normal secretion of the glands of the body itself, and of principles like the vitamines normally required by the body; and third, the isolation of similar active principles produced in the body by reactions with foreign bodies—such as antitoxins and similar principles."

As examples of this type of research, Professor Stieglitz briefly discusses ethylene, tryparsamide and sulpharsphenamine, the dyes such as acriflavine, gentian violet and mercurochrome; insulin, epinephrine, pituitrine, and the vitamines. He discusses also the work of Howland and his associates on calcium metabolism and that of Yandell Henderson on carbon dioxide. The last third of the lecture is devoted to a discussion of the general subject of oxidation—the fundamental theory of oxidation and reduction as a phenomenon involving the valence electrons of atoms. "Chemists have long been familiar with this theory but except for two or three very recent excellent investigations, it has not penetrated into the more extended biochemical and medical investigations of this important physiological function, without which life would be impossible. It is the author's conviction that real progress, permanent advances, can only be based on fundamental relations and not by over-emphasis of more superficial phases of the great problem."

Gonococcal Urethritis in the Male. By P. S. PELOUZE, M.D., Associate in Urology and Assistant Genito-Urinary Surgeon, University of Pennslyvania. Published by W. B. Saunders Co., Philadelphia and London, 1928. 357 Pages.

It has been a pleasure to review this book on gonorrhea in the male by Dr. Pelouze. Originality combined with experience and straight thinking are its outstanding features.

As Dr. Pelouze says, "The writers of text-books upon gonorrhea always have been at a disadvantage. They have found themselves under the necessity of outlining almost every plan of treatment that was supposed to possess any merit whatever." The course of treatment here outlined is of the utmost simplicity and certainly one that any physician could follow.

A large proportion of the cases of gonorrhea is treated by the general practitioner, undoubtedly in many instances to the detriment of the patient. Such treatment as Dr. Pelouze outlines, if adopted by the general practitioner, would surely lessen the severity and number of the complications of the disease in the average individual. Since it is by its complications that gonorrhea creates most of its havoc much would thus be accomplished in its control.

Important points emphasized by Dr. Pelouze are: the absolute necessity of gentleness in all urethral treatment, the avoidance of undue mechanical irritation and especially astringent solutions, the harmful results of vaccines in the acute stages, and the care with which the prostate should be massaged.

An interesting group of case reports concludes the book, each case illustrating points brought up in the text.

The author is to be congratulated in having written a book that departs from all the superstition of the past with which medical literature on this subject reeks. We feel that he has contributed wisely and well on a most difficult and important subject.

The Surgical Operations on President Cleveland in 1893 Together with Six Additional Papers of Reminiscences. By WILLIAM W. KEEN, M.D. Published by J. B. Lippincott Company, Philadelphia and London.

The story of the resection of Grover Cleveland's upper jaw for cancer, done clandestinely on Commodore Benedict's yacht during the financial panic of 1893, constitutes the first chapter of these delightful reminiscences. The contents of the remaining six chapters are suggested by the titles—Louis Pasteur, Personal Recollections of the Late Silas Weir Mitchell, M.D., Sixty Years of Surgery 1862-1922, What It Costs to Become a Doctor, An Episode of the Second

Battle of Bull Run, and Reply Following the Addresses at the Dinner Tendered to Dr. Keen by His Friends at the Celebration of His 84th Birthday, January 19, 1921.

It is needless to say that these memoirs of Dr. Keen's are utterly delightful and full of interest. To the reviewer, the rarest portions are those dealing with Cleveland's operation and with the Surgery of the Civil War, but every page is enjoyable.

Chirurgie de l'Estomac et du Duodénum. By HENRI HARTMANN, Professor of Surgery at l'Hotel Dieu, with the collaboration of others. Masson et Cie, Editeurs, Paris, 1928. 340 pp., 142 illustrations.

This seventh volume of "Travaux de Chirurgie," by Professor Hartmann and his colleagues of the Hotel Dieu, like its predecessors contains a series of articles drawn from the material of his clinic. This volume completes the presentation of the subject of gastric surgery, and since the pathology of the duodenum is closely allied to that of the stomach, the author has added several articles on duodenal lesions.

As in the volumes which have previously appeared, the authors have devoted themselves to recounting their personal experiences, giving statistics and drawing their conclusions from their own observations.

It is the opinion of the writers that the development of a carcinoma on the site of a chronic gastric ulcer is a very rare occurrence. They believe that certain malignant lesions appear to be superimposed on a chronic ulcer because of their slow development and marked fibrous tissue reaction.

A conservative note is sounded concerning the therapy of ulcers of the lesser curvature. In their hands a simple gastro-enterostomy has effectively relieved the symptoms, and the procedure is recommended because of its relative simplicity.

Nutrition. By WALTER H. EDDY, Ph.D. The Williams and Wilkins Company, Baltimore, 1928.

The contents of this book are divided into general food and vitamin requirements. In the first part, the completeness of food, energy, and protein requirements, the fat and starch to consume, the essential salts, and the digestibility of foods are given consideration. The second part is largely occupied with the discovery, determination, and selection of vitamin foods and how these accessory food factors are affected by cooking and what they do in the body. From the introduction one gets the impression that the book is compiled for the laity in order to know the food to buy and to eat. In the text, however, a great deal of information is amassed with numerous tables, formulas, and equations. Such technical information is likely to bewilder and be lost on a person of ordinary education. One seeking information on what to eat cannot realize the value of knowing that milk casein contains 10.50% of oxyglutamic acid or that corn zein contains 6.55% of phenylalanine. One interested in reducing could not appreciate the value of knowing that the minimum protective dose of home-cooked spinach to prevent scurvy in a guinea pig is ten grams. With exceptions of this kind showing that the author is largely interested in nutrition from the point of view of chemistry and animal experimentation rather than telling John Jones why he should not eat so much cereal for breakfast, the book is very complete and up-to-date and written in an easy narrative style. Nutrition workers and physicians should find the book valuable.

Manuel de Bactériologie Médicale. ANDRE PHILIBERT. Masson et Cie, Paris, 1928, p. 552.

This manual differs markedly from the usual American text-book of bacteriology, particularly in the arrangement of its contents. The first part, in the bacteriologic analysis of virulent products, after a chapter on general technic, takes up in order the examination of pus, sputum, blood, etc., telling what organisms to look for and how to search for them. The second part, which constitutes the bulk of the volume, gives a detailed description of each organism, the pathological picture it produces, its morphology, cultural characteristics, pathogenicity and habitat, and the serological methods for combatting it. The third section is a very brief discussion of immunity.

The author's purpose is to present to physicians a summary of the aid which bacteriologists can give them in the diagnosis of disease and of the methods which are employed. Since it is a summary, many of the statements are dogmatic and to some of them exception might well be taken, but, on the other hand, they represent the opinions of a trained bacteriologist.

Treatment of Diseases in Infants and Children. By HANS KLEINSCHMIDT, M.D., Professor of Pediatrics, University of Hamburg. Authorized translation of the Fifth German Edition with additions, by Harry M. Greenwald, M.D., attending Pediatrician to the United Israel Zion Hospital; Consulting Physician to the Hebrew Infant Home of Brooklyn, Brooklyn, N. Y., Philadelphia, P. Blakiston's Son & Co.

This is not a text-book of disease; it is a compendium of treatment only, and therapeusis is notoriously variable and unfortunately unreliable. It is not quite fair for one physician to question another's general system of treatment, for any system always works best in the hands of him who is most familiar with it. The fact is that there are so many forms of treatment which may be reasonably successful for the same ailment, that only the tyro is greatly benefited by adhering too strictly to one man's method, and methods employed in Hamburg with success may be less successful in the hands of those who are differently trained.

Forms of treatment recommended by Kleinschmidt may seem irrational to us; such as the dietetic treatment of status lymphaticus; the general dietetic treatment of eczema is totally neglected, and the Ketogenic diet in the treatment of epilepsy is mentioned only in a translation note. There are, on the other hand, long lists of recommended medicinal remedies for various conditions, and as many of these refer to German proprietaries they are of little value to us, for whom they are not available, and who are less addicted to the pharmaceutical method.

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